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## The Sir Charles Clubbe Memorial Oration.<sup>1</sup>

CLUBBE AND AFTER.

By SIR HAROLD DEW,  
Sydney.

I SHOULD like to thank the Board of Management of the Royal Alexandra Hospital for Children for the honour it has done me in inviting me to deliver this fifth oration in honour of Sir Charles Clubbe, the best known paediatrician of his day and president of this hospital for many years.

To do justice to a man of his calibre and to interest this distinguished audience posed a rather difficult problem, because one could not, of course, be too technical, although it is likely that the majority of those present are relatively well informed about medical matters.

I am flattered that the Board, following the best academic traditions, has left the choice of subject entirely to me; and although the magic of the appropriate word may be absent on an occasion when the need for it is greatest,

<sup>1</sup> Delivered on March 16, 1956, at the University of Sydney.

I intend to tell you something about Clubbe and his contributions to surgery and the hospital, to imagine what his impressions would be were he to return after twenty-five years, and to indulge in a little conjecture about the future of medical science.

### Clubbe and His Work.

Previous orators have dealt in some detail with Clubbe's origin, training and activities, and although in a commemorative address observations on a man's character and personality cannot be omitted, I do not find this easy, for I met him on only a few occasions. All who did know him, however—and there are many living who saw much of his activities—testify to his great enthusiasm, his kindness, his helpfulness to his junior officers and his great energy, particularly in all matters concerning paediatrics. From his earliest years of practice in Sydney he showed his greatest interest in the surgery of childhood, and one of his first contributions concerned talipes or club-foot, so that he may be regarded in some measure as the father of orthopaedic surgery, in its ancient and correct meaning, in Sydney. However, his main contribution dealt with the clinical features, diagnosis and management of intussusception, a disease affecting male babies particularly, in which part of the bowel is swallowed by or intussuscepted into the bowel below, with the production of intestinal obstruction. In those early days this disease was often unrecognized and was not treated properly, with the result that the mortality rate was over 90%. Clubbe studied it for

years, described the symptoms fully and showed how it could be diagnosed by an accurate history and examination, and how, provided the correct treatment was instituted, many of these babies could be saved. He taught his students, his resident medical officers and his junior colleagues by direct methods, and by writing and lecturing spread his opinions throughout Australia. He had, of course, to overcome the ingrained conservative habit of mind of many practitioners, and there was difficulty in those days in getting the information to many doctors who were scattered, and who were because of their seniority in charge of the largest number of patients. It was not until students and junior medical officers who had come in direct contact with him themselves became established in practice, and so in charge of increasing numbers of patients, that the effect of his work became apparent. This, of course, is an old story; it will always take time for a new idea to permeate throughout a large, widely scattered medical profession. His emphasis on suspicion first, itself dependent on full knowledge of the disease, early recognition and immediate treatment, together with his persistent teaching of all who came in contact with the hospital, led to a complete revolution with regard to mortality from this disease, and there are many, perhaps some in this hall tonight, who owe their lives to his work.

His small book on the subject, printed first in 1906 with a second edition in 1921, still remains one of the greatest single contributions to surgical literature made in this State. It was not long before his work was recognized, not only in other parts of Australia, but also overseas. Work on this subject was continued along similar lines by his colleagues and disciples at the hospital, particularly by Wade, Hipsley and Nelson, and wherever one goes in the world today one hears of the great reputation Sydney has in the management of intussusception. At present every doctor in this State and the majority of doctors in Australia know the full story, and as a result the mortality, particularly in New South Wales, is the lowest of any country in the world, certainly under 5%.

While active in other branches of paediatrics and busy with the training and helping of younger surgeons, being in this respect an exception in his time, Clubbe acted on some other hospitals for a period, and was by virtue of his make-up interested in many medical and public matters. He was on all counts one of the most outstanding personalities of the medical world of his day.

His other important contribution to medicine was his great work for the hospital he loved and served so well. He was associated with the Royal Alexandra Hospital for Children from 1884 to 1932 as honorary surgeon, as a member of the Board and as president for many years until his death in 1932. He saw the hospital grow into one of the largest children's hospitals as well as one of the greatest—the two terms are not necessarily synonymous—in the world, and foresaw that it would go on expanding and increasing in prestige. In assessing his contribution to medical progress, one has to bear in mind the limited state of knowledge at the time when he did most of his work, compared with the huge accumulation of knowledge in the ancillary sciences today, the difficulties he had to overcome and the impact of his work on future developments. Real leaders and discoverers such as he were rare. They have, of course, the use of the theories and speculations of the preceding age to guide them; but these people, who are sometimes called the "ferment folk", have in addition high resolve, are lavish in public service and by their devotion to their profession not only become local leaders in their chosen fields but gain world recognition. They know they cannot lead for long, but they leave behind them ideas and ideals which become the working rules of the next generation. Such men build not for expediency, but for the future, and the real test of their contribution is the continuing realization of the ideals with which they started. By these criteria Clubbe achieved greatness, and years after his death his influence still pervades the hospital.

To be so remembered with honour after twenty-five years, to have become in some way a tradition, and to have helped to mould developments in his own field is possibly

as much immortality as any man could be justified in expecting.

#### Developments in Medical Science.

If Clubbe could return after twenty-five years to survey what had happened in the fields of medicine and surgery and in the practice of his old hospital, he would find that a revolution had occurred. In the hospital particularly he would see many changes and greatly increased activities. The world of medicine generally agrees that the criterion on which the greatness of a hospital is judged is not size, but a triad—the standard of treatment it gives to its patients, the efficiency of teaching of undergraduates and graduates, and the contribution it makes to medical progress. The Royal Alexandra Hospital for Children has increased in size; special wings and special departments with modern diagnostic services have been provided to keep pace with an increasing demand. It has kept up to date in every respect, and with a contented and efficient medical staff the standard of treatment has been maintained at a very high level.

This hospital is the main university hospital for teaching paediatrics, and the courses given in this subject are equal to anything in the world. The teaching of Fellows in Paediatrics and the younger members of the medical staff has improved greatly, but still requires further elaboration and organization. It is hoped that the Institute of Child Health under Professor Lorimer Dods, when it obtains adequate facilities, will do much more along these lines. The formation of this special hospital activity under the direction of a university professorship was one of the ambitions of Sir Robert Wade, who had closely followed the development of paediatrics in other parts of the world. He made this ideal the main theme in the third Clubbe oration, and it was very gratifying to all that it came to fruition during his lifetime.

The actual suggestion that such a university chair should be established came to me officially at the University of Sydney from Sir Robert Wade when he was president of the hospital board in 1946. The Faculty of Medicine supported the suggestion unanimously and recommended its adoption by the Senate, which unfortunately had to reply that it was unable to supply adequate funds for the purpose. It was, of course, known to some of us that the National Health and Medical Research Council had for years been financially supporting investigations with regard to infant welfare and mortality, nutrition and health problems generally, and that it regarded these projects as having a very high priority. It had also made many recommendations on these matters to the Commonwealth Minister for Health, informing the Commonwealth Government that infant health was a crucial national problem, and that prevention of disease at this stage was just as important as its cure. The University referred the problem of the chair of child health to the Director-General of Health at Canberra, together with the Faculty's recommendation, and it is to the lasting credit of the Director-General, Dr. A. J. Metcalfe, that after overcoming some political difficulties he was able to persuade the Commonwealth Government to endow a new university chair and department at the hospital. After some negotiations between the University, the Commonwealth Director-General of Health and the hospital board, satisfactory conditions and facilities for the establishment of this department were finalized, and Professor Lorimer Dods was appointed in 1949 as the first Professor of Child Health in Australia. One can imagine how delighted Charles Clubbe would have been had he seen this happen. To all those who are seized with the fundamental importance of preventive medicine and who realize what it could mean to national health in Australia, the establishment of this department with university status should, if it develops appropriately, become a most important activity, if not the greatest, in this field. Most citizens are apt to forget that a great deal of preventable disease affects children, and that the ravages of disease during this period are responsible for much ill-health in later life. Our country, too, is faced with the serious problem of how we can hope to hold, in the face of external criticism and possibly pressure, this vast country with a small

population, which is not increasing at a rate comparable with some others. It is all the more important, then, that we should ensure that those infants that do survive are of as good a quality as possible.

It has been rightly said that if a beneficent dictator could hand over complete—and by this one means complete—control of all our children for the first ten years of life to competent medical authorities, even with their present knowledge, the standard of our national health would be revolutionized. Such a thing, of course, is politically impossible; but much more could be done than at present, and all should realize that from every point of view—national, social or economic—any measures which can improve the health of our children must in the end be a great national investment.

It is obviously not my function to make suggestions as to how this department should develop, but there seem to be no limits to the possibilities in respect of the study of child health at all ages, the behaviour and control of infectious diseases, surveys of child nutrition, recognition and correction of defects and many other matters that concern paediatricians. As well as the influence it could have on the preventive aspect of disease, it should also play an increasingly active part in the study of disease processes, in the communication and the testing of new methods of diagnosis and treatment, and in the special training of young enthusiastic graduates in this special field. It is, I think, essential that this department should have very full facilities for clinical research into various paediatric problems. This would mean a specially organized ward with attached laboratories and ancillary services with an adequate staff. This activity should ultimately make the hospital the focal point of consultation and advice to all bodies or persons who are particularly interested in paediatrics.

I feel that this is the most significant single development that has ever taken place at this hospital, that it is important that it should be allowed to develop steadily, and that one cannot over-estimate its potential value to the State. In the end its work will bring more renown to the hospital than any other activity, and it is hoped that successive hospital boards will always realize that they have here not only a great opportunity to add to the prestige of the hospital, but also a great responsibility to our people. In the same way it is hoped that the various governmental bodies who may be associated with health problems will realize that here they have available a great centre for information and advice on paediatric matters, and that they will give it their unqualified support.

#### Contributions to Knowledge.

Apart from the contributions of Clubbe and his followers, which have become standard practice in paediatrics, and quite apart from various additions to knowledge in respect of many diseases, this hospital has made other truly outstanding contributions.

When Norman Royle first introduced surgical attack on the sympathetic nervous system, having what many thought at the time the great temerity to resect the sympathetic chain in young subjects, he worked in very close association with the surgeons of this hospital. Although he carried out the greater part of his work at Lewisham Hospital, he did, with the cooperation of Wade particularly, use the procedure at the Royal Alexandra Hospital for Children for the treatment of Hirschsprung's disease, as well as for some special types of spastic paralysis. Clubbe saw the beginning of this work, but did not live to appreciate its full implications.

We now know that such an operative attack is not indicated in these particular diseases, and that the original premises of Hunter and Royle as to the action of the sympathetic nervous system in these conditions were unsound. However, this is a very good example of what has sometimes happened in other fields—that an original hypothesis upon which a procedure is built may prove neither to have been correct nor to have the hoped-for application, and yet can in effect lead to an important advance. This work of Royle, in which the hospital played

no small part, opened up the whole surgery of the sympathetic system, which in the hands of numerous surgeons here and abroad has had a wide application in many other conditions—quite different from those for which it was originally used. It is also sometimes forgotten that this, too, was one of the few really great contributions made by Australia to the progress of surgery.

Another outstanding contribution was that of Gregg, who from his observations on congenital cataract in young children made the brilliant deduction that the virus of rubella (German measles) in the mother affected the development of the eye in the developing child in the early stages of pregnancy—a conception soon proved correct by other observers in other types of congenital defects as well. This gave us a new principle as regards the aetiology of disease, and received world-wide recognition. When one considers the rather small number of contributions of international significance made by Australia to clinical science, it is a remarkable and unique fact that three of these should have been associated with this particular hospital. One can then imagine with what delight and satisfaction Clubbe would have seen that his hospital, in regard to standards of treatment, teaching activities and contributions to medical knowledge, has abundantly fulfilled the three criteria of greatness mentioned above.

#### Medical Advances.

During the past twenty-five years there have been unparalleled advances in the natural sciences, international communication has become easier, and medicine has developed *pari passu*. This has been due to numerous factors—the great increase in biological knowledge in general, the accumulated work of scientists in many fields, the appointment of full-time workers in all departments of medical science, and the stimulus of the war effort. The latter is very important, for during war the whole country's effort is dedicated to national survival; medical men in thousands have one main function, the saving of life from injury and specific diseases, thus contributing greatly to the conservation of manpower. All this single purposefulness must lead to progress, and some recent advances have been largely the result of wartime experience. Time does not suffice to deal with all these advances, but there are a few outstanding ones which would have surprised even a man of vision like Clubbe.

#### Anæsthesia.

The art of anæsthesia, thanks to the application of physiological and pharmacological principles, has gradually developed into a science. Not only has this advance removed all fear of the administration of anæsthetics, but it has made anæsthesia much safer and more efficient. This has made surgery so safe for the patient that the surgeon is now able to carry his work into such regions as the brain, the lungs and the heart, and can bring his skill to benefit the elderly and the "bad risk" patient with a minimum of anxiety. Anæsthetists have at their disposal new methods of induction, better and more accurate drugs, a fuller understanding of the physiological problems involved and a greater knowledge of methods of resuscitation. They keep a watch on the patient's physiological processes during the operation, and during the post-operative period they carry their work into the wards, so far relieving the surgeon of worry that he can concentrate fully on the technical details of his own work. The anæsthetist is nowadays almost coequal with the surgeon in the team and his wonderful new skills have alone made much modern surgery possible.

#### Use of Blood and Resuscitation Methods.

Blood transfusion has been used for some thirty years; but it took the experience of the last war to give us a better appreciation of all its uses. This taught us its proper place in severe injury, in severe burns and in all types of surgical shock—all too common phenomena during war. Apart from its great importance in all forms of surgery, its use has been extended into other fields of medicine, too many to enumerate here. By its use pædia-



trics, particularly in relation to the very young child, and obstetrics have been revolutionized. One can say now that provided a patient arrives at hospital alive death should not and almost certainly will not occur through loss of blood. This old enemy of surgery has truly lost its terrors.

An overwhelming debt is owed by all to the Red Cross Society, which has extended its great war work into civilian life. The work of its blood bank, which alone obtained blood from some 53,000 donors last year and distributed this to hospitals and doctors either as whole blood or as some plasma fraction, has been a life-saving contribution whose value is beyond computation. It is, I think, not realized widely enough what the people of this country owe to this great organization.

#### *Fluid Balance and Control.*

We have also come to realize the great importance of the maintenance of accurate fluid balance in the body and of the adequate control of electrolytes in our body fluids. This work, which has been developing since the early thirties, has led to surprising advances in treatment and has caused such post-operative difficulties as persistent vomiting and abdominal distension to be largely overcome. This, together with gastric decompression and continuous intravenous therapy, has greatly enlarged the field of abdominal surgery, has lowered the mortality of all abdominal operations, has given the surgeon a new assurance in many types of cases, has removed much of the old-time anxiety in the post-operative period and has saved innumerable lives. Any surgeon of a few decades ago would be literally staggered by this revolution in the post-operative management of surgical patients.

#### *Antibiotics.*

The practical use of chemotherapy dates from just before the last war, when Colebrook, at Queen Charlotte's Hospital, London, showed that sulphonamides could control the septicæmias classically associated with childbirth. Drugs of this type have proved their value in the treatment of many infectious diseases and still remain remarkable therapeutic agents. During the early part of the war this advance was followed by the isolation of and demonstration of the value of penicillin by Florey, who worked on the original discovery of Fleming, and from that date there has been a regular isolation of new antibiotic agents which are now at our disposal. It was rather strange that it had not been previously realized that something in nature must destroy all the tons of bacteria with which human beings have contaminated the soil; this destruction we now know is carried out by the humble moulds, of which there are thousands of varieties in the soil and air. From these simple plants have come these remarkable compounds, many of which have a specific action on disease organisms, so that specificity and precision in their use are becoming more and more the order of the day. All this has led to the practical abolition of, or at least the removal of, fear of such conditions as blood poisoning and of a great number of previously highly lethal infections by microorganisms. This has revolutionized the practice of surgery; some complications have almost vanished, while others have lost their terror. Nobody can ever compute what this has meant, not only as regards reduced mortality, but as regards human suffering.

#### *New Developments in Surgery.*

As has already been mentioned, surgery generally has not missed its opportunity, has taken advantage of all these advances, has extended its scope in all directions, has become very much safer and has greatly reduced its morbidity and mortality. It is a very far cry from the early days of Listerism during the last century, when Clubbe saw the beginnings of aseptic surgery, to modern surgical practice. There is no time to describe all the advances, but there are some special developments of great importance. Neurosurgery or surgery of the brain and spinal cord has become firmly established during the last twenty-five years, and procedures are now carried out

which would have surprised our predecessors. In the same way successful surgical operations on the lungs and the heart, particularly for congenital defects which often produce the so-called "blue baby", are now commonplace. Developments in cardiac surgery are still going on, and with the application of new knowledge of the physiology of hypothermia, for example, further advances are certain. In this field is, perhaps, the most perfect operation in the whole of surgery—ligature of a patent *ductus arteriosus* which causes one form of congenital heart disease; this is the only operation which removes nothing but which restores the patient to normal with a perfectly balanced heart and circulation. These are only a few of the special advances in our craft and science, and in spite of the statements of quite a number of surgical prophets we have not yet reached the limit of the range of surgical procedures.

#### *Medical Research.*

Medical research methods and techniques during the past twenty-five years have developed *pari passu* with discoveries in the other sciences. Medicine has been quick to seize upon developments in all the ancillary sciences and to apply these to disease problems. There has been much more support in all countries for research workers, those enthusiastic people who are prepared to make personal sacrifices in order that they may add more facts to our knowledge of natural phenomena, so that there are today many more—but of course not nearly enough—full-time workers active in all sorts of fields. Facilities, too, both at universities and at hospitals, have been greatly improved, and an increased output of work has been the result. An increasing tendency of the time has been for problems to be attacked by teams of workers because as a rule a number of different techniques have to be used.

There have been such strides in organic chemistry that biochemical and pharmacological research now needs large departments, and it is probably in these two subjects, which can be regarded as being in the forefront of medicine today, that the greatest future developments will take place. Another great change has been in the application of accurate measurement, so insisted upon by the older sciences, to biological phenomena. This has come about through the development of electronics, which owes much of its application to radar, so that we are now able to measure and record electric potentials in animals and plants in the order of millionths of volts. Along with this have been striking developments in microchemistry, which with its new techniques is teaching us more and more about the activity of the cell and its nucleus; in fact, we are getting down very close to the nature of life itself.

All these things and many more Clubbe would see and marvel at if he could return after twenty-five years. He would find that such diseases as diphtheria, acute osteomyelitis, pneumonia and meningitis, to mention the most important—all terrible scourges in his day—have been practically banished from the wards. He would see, too, that many of the problems met by his contemporaries—hæmorrhage, shock, infection and ileus—have been almost completely overcome, and that still greater advances are certain.

#### *The Future.*

It is with rather more diffidence that I turn to possibilities for the future and perhaps indulge in a little armchair prophecy, always a risky thing in scientific subjects; but at any rate, I shall probably not be here to see any suggestions proved wrong. It was Carlyle who once wrote: "Where we are we know, whither we are going to man knoweth." That is essentially true even in science, but there are trends upon which we can base some predictions.

#### *The Rise of Specialism.*

One of the most important developments in medicine and surgery which is still going on is the growth of rather narrow specialization. Without any doubt this has led to great advances in many fields. It may, however, carry with it some possibility of doing harm to the general progress of medical science, and anyone who takes a broad



view of medicine cannot help but be a little perturbed. The founders of most specialties have always been well grounded in the whole content of medical knowledge and so have been able to draw upon their general experience to advance their special subject; this has been true of such subjects as orthopaedics, urology, gynaecology, neurosurgery and thoracic surgery, and the same is true of some of the more recent medical specialties.

Himsworth (1955) has recently pointed out that narrow specialism at first leads to a rapid increase of knowledge in that field, a development all to the good, but that after a time there is a tendency for the specialists to develop their own language and their own narrow interests; they may become rather complacent about their own achievements, and so there is a gradual lessening of the possibility of discovering more in the special field. They sometimes seem to forget much of what is owed to the old knowledge, so that there may be a tendency towards intellectual stagnation. These are rather strong words; but as Himsworth pointed out, the loss of close contact with the general body of medicine not only means a loss to the special branch but may interfere with medical progress, a state of affairs which he believes can be remedied only by the closer integration of the whole mass of medical knowledge and by the rise again of persons skilled in more than one discipline. Advances in one field are usually applicable in others; but all branches of medicine must retain active communication with the main mass of knowledge if we are to preserve the intellectual unity of the whole.

I believe that professional bodies and associations who are particularly concerned with this aspect, particularly the universities and the Royal Colleges, should and could do much to bring about this integration between the various branches of medicine, and that there would be benefit to all concerned, as well as to the progress and application of new medical knowledge.

#### *Further Possible Advances.*

There is no doubt that we shall see the practical abolition of infectious disease, and that tuberculosis, leprosy and some other rather resistant diseases will follow typhoid, diphtheria and others more or less into oblivion. This will leave us faced with diseases due to viruses and some protozoal and metazoal parasites; but there is little doubt that control of these is now within our grasp. This control, of course, will introduce many new problems in its wake. The problems associated with cancer, too, will be solved. The first of this group to be fully understood will be the sarcomata, within the lifetime of some in this hall. The answer will not come from further studies of the disease in the human subject; we know all that there is to be known about its story and its behaviour, but we do not yet know the actual exciting cause. Further studies of biochemical changes in the cell, and of the action of growth factors within the living cell, will in the end give us an understanding of why the cancer cell behaves as it does, and we shall then be able to plan our attack accordingly.

Extension of present work on the function of the brain and spinal cord, some of it quite remarkable, will lead to a much fuller understanding of the functions of the nervous system. This will be followed by a much better understanding of psychological phenomena, and will not only lead to a more accurate management of all types of nervous disease but may point the way for further surgical attack. The surgical procedure of leucotomy, for instance, with its modification of personality in some cases, has already had its advocates; but this must be replaced by more precise methods, based on fuller understanding and rigid controls. The social and economic results of this development may well be revolutionary.

We still know far too little about the chemistry of cellular growth, hormonal control of development, the remarkable differentiation of tissue in the growing embryo, and human genetical disease. All these are being attacked directly and experimentally, and the results may lead to important applications in the future. We still have to solve many problems concerning the healing of injured

tissues, scar formation, union of bone, repair of all sorts of special tissues and the exact mechanism of blood coagulation. When the cytologists and biochemists give us a complete explanation of these and the chemical factors that control cell multiplication and cellular reactions, the surgeon will have powerful new weapons at his disposal.

At present the use of tissue grafts from one person to another—the use, as it were, of spare parts—is greatly limited in its application; but when we discover and learn how to control the chemical factors involved, this type of work will become more universally applicable.

Another important problem—one which is at present interesting many groups of workers all over the world, and one which is of some personal import to many of us—is that concerning the changes associated with the aging process, and this has led to the rise of a new, constantly expanding field for research—the science of geriatrics.

The greatest advances will almost certainly follow further developments in biochemistry and pharmacology. New substances are being made that Nature never thought of; we are learning exactly why and how chemical substances act on our cells and organs, and all this is leading to greater specificity and precision in treatment.

Time does not permit of a full survey of the possibilities, but enough has been said to show that the face of medical science is rapidly changing, that continued progress is assured; so that just as I have seen developments undreamt of by my teachers, so students I have taught will see things that I have only vaguely dreamt of.

All this means a greater responsibility for the universities, where more than ever before medical education must teach for the future, so that future graduates will be so grounded in scientific methods of observation, recording and deduction that not only will they be able to understand further developments when they meet with them, but they will be able to evaluate and utilize them properly.

The university, with its numerous closely associated scientific departments which are safeguards against intellectual isolation, is the only place where students can be exposed to the true scientific atmosphere, where they can be trained adequately, and where they can develop the correct attitude of mind to things scientific, and it is the only place where young recruits for medical research can be discovered, encouraged and directed.

It is, I believe, essential that the long training in the preclinical scientific subjects should remain the dominant feature of the medical curriculum. I do not believe that the medical course of the future can be too academic, or that the course can be too strongly based on science.

It is only during the medical course that the young doctor is really exposed to science during his impressionable years, and if we are to have in the future a highly trained progressive scientific medical profession, there is nothing that can replace this type of training.

#### *The Future of Medical Research.*

Modern medical research will go on developing rapidly, for it does not march alone, but now has the whole range of scientific knowledge at its disposal. Some centuries ago Roger Bacon emphasized this essential unity of science:

All sciences are connected, they lend each other material as parts of one great whole. As an eye torn out or a foot cut off so it is with the different departments of knowledge none can attain its proper result separately since all are parts of the one and the same complete wisdom.

This is even truer today, and we cannot, therefore, afford to neglect any aspect of any scientific advance in the future. There has been in the last two decades a steady flow of new scientific knowledge, much of which has already been brought to the service of the biological sciences. A few years ago very few people would have thought that the deviation of a beam of electrons in a magnetic field or the neutron bombardment of a heavy metal with the production of radioactive isotopes of a lower atomic weight would have had any possible application to medical science. Yet the first has given us the cathode ray oscillograph, an

instrument of extreme precision which is universally used for recording purposes in all large laboratories, while the second has given us radioactive isotopes which are proving invaluable in unravelling some of the mysteries of biochemistry, particularly in relation to immunity. In the latter connexion, if one wants to consider the fantastic, one of my biochemical acquaintances abroad is now tagging trypanosomes and toxins and antitoxins with radioactive sulphur and checking their behaviour in experimental animals. He says that his ambition is to tag viruses and so be able to follow their behaviour *in vivo*. I believe it quite possible that someone will be able to do this.

Never before has medical science had such bountiful resources at its disposal; it must never allow itself to fall behind, and must, as do all the other sciences, insist on accurate experimental methods. It is, of course, impossible to carry out direct human experiments because of the multiple factors concerned; but we have to remember that even in this field of special biology, as in other scientific fields, like causes produce like effects, and any exceptions are apparent rather than real. If we are reduced to pure observation, science moves very slowly, so that although straight clinical observations alone have led to some advances, these lack precision, and they have to be put under controlled experimentation for complete proof and understanding. Good examples of this are seen in the story of Jacksonian epilepsy and the final study of cerebral cortical localization by experiment, and the rise of modern cardiology, which owes much, practically everything in fact, to the experimental attack on cardiac physiology by methods worked out in the experimental laboratory. More than ever before, with its insistence on accurate measurement and scientific control, modern research needs team work, because it is almost impossible for any one individual to master all the special techniques used. It is, of course, very important that the leader of any such team should have a good general knowledge of the use and limitation of all the particular disciplines. At the same time, it is very obvious that there will be an increasing demand for full-time workers, well trained in many special fields.

There is little doubt that today science is on the march; any country which neglects it, and which does not have available a great number of adequately trained scientific workers in every field, must fall behind. One cannot help feeling that the golden age of medicine is with us, and that many here tonight will have the benefit of still more wonderful advances than those we have already seen.

#### What We Can Do in Australia.

There has been a tendency in Australia, with, of course, a few outstanding exceptions, to copy and exploit discoveries made elsewhere, and it would seem that if we are to hold our own in this scientific age, we must play a bigger part in initiating original research. It must be remembered that a great deal of spade work is required, and that many great discoveries have been made possible only because of the more or less unrecognized labour in the collection of biological facts carried out by a great number of patient enthusiasts. All biological facts may at some time be of value, if not to those immediately associated with their discovery, perhaps to someone else, and therefore accurate recording and reporting of these may in the end prove of inestimable value. They are often discovered out of sequence, as it were, so that a gap has to be filled to make the story a complete one. That, of course, is sometimes where the luck comes in, although the person who really makes the final synthesis is usually one of discernment, who is so trained that he sees the importance of the additional knowledge. It is obvious that a more complicated set-up than that usually considered adequate in the past is needed if research is to be of truly scientific worth, and so to attain world standards medical research must be expensive. However, if we can in this country solve only a few of the puzzles that face us, we will play our part. It can be done, because we turn out here many brilliant young people who have the capacity to do good work, and need only constant encouragement and the provision of adequate facilities to add their quota. The true research

worker has an insatiable desire to add something to knowledge without any expectation of real reward or even of special recognition, gaining only the personal satisfaction of having taken a step forward in knowledge, and perhaps coming to be associated even in a minor degree with that brilliant procession of investigators stretching back into antiquity who have enriched science and served humanity.

Men who have the true spirit of scientific investigation are perhaps the best product of our people, certainly one of the most important, and there is little doubt that upon their findings the whole future of our civilization and perhaps our survival as an independent nation may depend, so that from the national point of view it is a very short-sighted policy if they are not given every help and encouragement. In all these matters in our particular social structure public opinion is after all the real driving force, and on the problem of national health people should be in deadly earnest. The attitude of the people as a whole tends to be complacent, and their reluctance to give full support to attempts to apply the results of science to health and social problems at times seems inexplicable. Even well-educated people have some tendency to accept readily any story which appears to contradict an established scientific fact—perhaps an indication of the very human tendency to take any excuse that relieves the individual of personal responsibility. These peculiar reactions in matters concerning national health were well summed up by a great Australian, J. H. Cumpston, late Commonwealth Director-General of Health, to whom this country owes so much, when he wrote:

There is some fundamental impulse in human nature that prefers the course of least effort with its hidden dangers to the strenuous and self-denying life with its known rewards so that parliaments may legislate, departments may regulate but success is only possible to the extent of which the people concerned intelligently and efficiently co-operate.

I cannot emphasize too much the need for our people to take national health problems very seriously, and to make certain that medical research is stimulated and encouraged in every possible way.

In all these matters, the universities, the hospitals and the public have equal responsibilities for the provision of adequate facilities and financial encouragement. This is the only way to attract young workers into the field; they know that the way is long, that there are often long, disappointing, relatively quiescent periods in the progress of science, and then, out of the blue, as it were, comes some discovery which makes everything worth while. That was particularly true of radar, insulin, sulphonamides, atom disintegration, penicillin and paludrin, for example; but this makes research work all the more interesting and even exciting.

However, there are always a certain number of people with the right kind of intellect who, in spite of all the difficulties and disappointments, can be directed and encouraged to enter this field, and it is our duty to find them. They, as well as all those who have followed the scientific progress of the last half-century, appreciate how appropriate are Longfellow's simple verses:

And Nature, the old nurse, took  
The child upon her knee,  
Saying: 'Here is a story book  
Thy father has written for thee.'

'Come, wander with me,' she said,  
'Into regions yet untrod;  
And read what is still unread  
In the manuscripts of God.'

And whenever the way seemed long,  
Or his heart began to fail,  
She would sing a more wonderful song,  
Or tell a more marvellous tale.

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SOCIAL FACTORS IN MENTAL ILL-HEALTH<sup>1</sup>

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It is the theme of this paper that the social investigation of a case of mental disorder is not merely an interesting or useful adjunct to the complete examination of the patient, but is an essential part of that investigation. In fact, no case of mental illness can be fully understood, except in the context of the social setting in which it arises.

By my concentration on social factors tonight I do not wish it to be supposed that I am guilty of attributing too little importance to constitution and heredity in the causation of mental illness. I think most people at the present time agree on the importance of these factors, and believe that personality and its disorders result from the interaction of heredity and environment. Having placed the subject of tonight's discussion in its proper perspective, we can now proceed.

Everyone here will be familiar with the work of Bowlby, which has shown the importance of warm emotional relationships with parents or adequate parent-substitutes during infancy and early childhood for normal development and mental health later in life. What may not be so widely recognized is the dependence of the adult on his environment, and in particular on contacts with other people. This dependence is demonstrated rather spectacularly by a series of experiments by Bexton, Heron and Scott, who used volunteer college students as subjects. The subjects were placed in small, closed cubicles on comfortable beds. They were fed on request and went to the toilet on request, but otherwise did nothing for twenty-four hours per day. They wore frosted glass goggles that admitted light, but did not allow pattern vision. Their ears were covered by a sponge-rubber pillow in which were embedded small speakers to permit communication, and a microphone hung near each subject. Their hands were covered with gloves, and cardboard cuffs extended from the upper part of the forearm to beyond the fingertips, to allow free joint movement but no tactual perception. The results were dramatic. There was extensive loss in the solving of simple problems, and the subjects complained that they could not concentrate. They looked forward eagerly to the next problem out of boredom, but when the problem was presented they found themselves unwilling to make the effort to solve it. When they emerged from the cubicles they showed significant loss on the intelligence tests that had been administered before they entered. Many of the subjects reported remarkable visual hallucinations, which were apparently similar to those which occur under mescaline.

As Hebb says: "We think of some persons as being emotionally dependent, others not; but it looks as if we are all completely dependent on the environment"; and, one might add, on the people in the environment. Hebb further points out that the well-adjusted adult is not intrinsically less subject to emotional disturbance than a four-year-old child or a chimpanzee, but he is well adjusted and relatively unemotional as long as he is in his cocoon, the cocoon being his social environment, to which he conforms and which in turn regards him with approval and supports him emotionally.

It may be profitable at this stage to consider briefly the process of civilization of the human race, or the development of a child in a civilized community, both processes being remarkably similar. We can then see how this process, which results in a relatively homogeneous society lending support to its members, also makes certain demands from members of the community, and the nature of these demands and more particularly the way in which the individual meets them, render civilized man prone to mental breakdowns of varying degrees of severity.

To quote Freud in "Civilisation and its Discontents":

Once primitive man had made the discovery that it lay in his own hands—speaking literally—to improve his lot on earth by working, it cannot have been a matter of indifference to him whether another man worked with him or against him. The other acquired the value of a fellow-worker, and it was advantageous to live with him. Even earlier, in his ape-like prehistory, man had adopted the habit of forming families; his first helpers were probably the members of his family. One may suppose that the founding of families was in some way connected with the period when the need for genital satisfaction, no longer appearing like an occasional guest who turns up suddenly and then vanishes without letting one hear of him for long periods, had settled down with each man like a permanent lodger. When this happened, the male acquired a motive for keeping the female, or rather, his objects, near him; while the female, who wanted not to be separated from her helpless young, in their interests, too, had to stay by the stronger male. In this primitive family one essential feature of culture is lacking: the will of the father, the head of it, was unfettered. . . . The way led from this family-life to the succeeding phase of communal existence in the form of a band of brothers. By overpowering the father, the sons discovered that several men united can be stronger than a single man. The totemic stage of culture is founded upon the restrictions that the band were obliged to impose on one another in order to maintain the new system. . . . The first result of culture was that a large number of human beings could then live together in common.

What of the demands made by the community on its members? I can do no better than quote Freud again:

The tendency of culture to set restrictions upon sexual life is no less evident than its other aim of widening its sphere of operations. Even the earliest phase of it, the totemic, brought in its train the prohibition against incestuous object-choice, perhaps the most maiming wound ever inflicted throughout the ages on the erotic life of man. Further limitations are laid on it by taboos, laws and customs, which touch men as well as women. Various types of culture differ in the lengths to which they carry this; and the material structure of the social fabric also affects the measure of sexual freedom that remains. . . . Culture obeys the laws of psychological economic necessity in making the restrictions, for it obtains a great part of the mental energy it needs by subtracting it from sexuality. Culture behaves towards sexuality in this respect like a tribe or a section of the population which has gained the upper hand and is exploiting the rest to its own advantage. Fear of a revolt among the repressed then becomes a motive for even stricter regulations. A high-water mark in this type of development has been reached in our Western European civilisation. Psychologically it is fully justified in beginning by censoring any manifestations of the sexual life of children, for there would be no prospect of curbing the sexual desires of adults if the ground had not been prepared for it in childhood. Nevertheless there is no sort of justification for the lengths beyond this to which civilised society goes in actually denying the existence of these manifestations, which are not merely demonstrable but positively glaring. Where sexually mature persons are concerned, object-choice is further narrowed down to the opposite sex and most of the extragenital forms of satisfaction are interdicted as perversions. The standard which declares itself in these prohibitions is that of a sexual life identical for all; it prays no heed to the disparities in the inborn and acquired sexual constitutions of individuals and cuts off a considerable number of them from sexual enjoyment, thus becoming a cause of grievous injustice. . . . Present-day civilisation gives us plainly to understand that sexual relations are permitted only on the basis of a final, indissoluble bond between man and woman; that sexuality as a source of enjoyment for its own sake is unacceptable to it; and that its intention is to tolerate it only as the hitherto irreplaceable means of multiplying the human race.

The restrictions placed upon sexuality are not the only demands which culture makes of its members. It will be remembered that there are two main groups of instincts: first, the instincts of love, sex, *et cetera*; and second, the instincts associated with aggression, destruction and hate, and severe restrictions are, also placed upon this latter

<sup>1</sup>Read at a meeting of the Section of Neurology, Psychiatry and Neurosurgery of the New South Wales Branch of the British Medical Association on November 15, 1955.



group. At the risk of becoming monotonous, I will quote Freud again:

The existence of this tendency to aggression which we can detect in ourselves and rightly presume to be present in others is the factor that disturbs our relations with our neighbours and makes it necessary for culture to institute its high demands. Civilised society is perpetually menaced with disintegration through this primary hostility of men towards one another. Their interests in their common work would not hold them together; the passions of instinct are stronger than reasoned interests. Culture has to call upon every possible reinforcement in order to erect barriers against the aggressive instincts of men and hold their manifestations in check by reaction-formations in men's minds. . . . Men clearly do not find it easy to do without satisfaction of this tendency to aggression that is in them; when deprived of satisfaction of it they are ill at ease. . . . What means does civilisation make use of to hold in check the aggressiveness that opposes it, to make it harmless, perhaps to get rid of it? . . . The aggressiveness is introjected, "internalised"; in fact, it is sent back where it came from, i.e. directed against the ego. It is there taken over by a part of the ego that distinguishes itself from the rest as a super-ego, and now, in the form of "conscience", exercises the same propensity to harsh aggressiveness against the ego that the ego would have liked to enjoy against others.

The development of the super-ego is, of course, essential to ensure conformity of the individual with the dictates of society; it is able to do this because, as well as inwardly directed aggression, it consists of introjected images, primarily of the parents and later of other representatives of the particular culture. The super-ego is also responsible for the fact that civilized man is seldom completely happy for any length of time, as its activities produce a sense of guilt not only at wicked actions but also at wicked intentions. However, the normal adult is prepared to forgo some of his happiness as the price which must inevitably be paid for his place in a civilized society with all the advantages which accrue from this. He accepts the beliefs, attitudes and values of his culture, and in return gains, as well as material advantages, emotional support and the approval of his fellows.

The growing child progresses along lines very similar to the hypothesis outlined above for the development of a civilized community. He becomes at first dependent on his family, and then as he grows older and his experience widens, the influence of his family diminishes, and he looks for support more and more from his school-fellows and later from the broader culture in which he lives.

The process of civilization, or socialization, unfortunately breaks down rather frequently, and the greater the demands of the culture, the more frequent the breakdowns. In very broad terms, and in a grossly over-simplified way, we may say that the following are the main types of situations which may arise and cause mental ill-health of one kind or another:

1. A desire to conform outwardly with the demands of society, coupled with difficulty in completely repressing instinctual urges. This results in neurosis and depressive psychoses.
2. Rejection of the demands of society—which may lead to criminal conduct.
3. Refusal to conform, but with no manifest aggression against society (eccentrics, hermits, *et cetera*).
4. Refusal to conform with the demands of society, with an attempt to set up one's own private world—the schizophrenic and paranoid psychoses.

So far, in considering the stresses which are set up during the process of civilization of mankind in general, or of a particular member of mankind, we have dealt only in broad outlines, and what has been said can be applied to the majority of civilized communities today. It may be profitable now to turn to particular cultures and see how their varying systems of attitudes, beliefs and values can produce varying clinical pictures of mental disorder.

There is no need to go into details of the innumerable variations in customs, beliefs, folk-lore *et cetera* which

are found in different cultural groupings of mankind. It is common knowledge that the personalities which are formed are characteristic of the particular culture in which they arise, and it is only reasonable to conclude that disorders of those personalities will also bear some relationship to the prevailing cultural pattern. The varying systems of beliefs, attitudes, legends, and so on, not only serve the social investigator as useful indicators by means of which he can distinguish between cultures, but they play an essential part in the moulding of personality of the developing child, and in providing support for the adult members of the society.

Everyone here tonight will be familiar with the varieties of mental disorder prevalent in Australia with its mainly Western European culture, so more point will be lent to my remarks by quoting some examples of diseases peculiar to certain other cultures, from the many collected by Dr. Yap, of Hong Kong.

#### The Latah Reaction.

The *latah* illness occurs among Malays. The patient is usually a middle-aged woman, who when suddenly frightened, falls into a trance-like state characterized by automatic obedience, echolalia and echopraxia. The stimulus may be of the most trivial kind, and in the *latah* state the patient is completely at the mercy of those who surround her, doing almost anything they command her to, and imitating all their actions. In younger women a brief exhibition of echo-symptoms when startled or suddenly embarrassed occurs at times. Many Malay women in the countryside show this and nothing more; but some subjects progress until they become, after many years, permanently *latah*, when they tend to hide themselves from other people.

Yap considers *latah* to be basically a neurosis, with pronounced hysterical features. He states that it is possible that the social and cultural conditions in places where the disease occurs are such as to produce a certain passivity of mind and unpreparedness for sudden decision or action, since they are far removed from the noise and competition of modern civilization, but are at the same time not wild and menacing to their inhabitants.

A few illnesses essentially similar to *latah* have been described in rather similar, simple communities in other parts of the world. The literature contains a description of a mass outbreak in a regiment of Cossacks, who suddenly began to repeat their colonel's commands, and the more the colonel expostulated, the more readily the soldiers imitated his swearing.

#### Amok.

*Amok*, which also occurs amongst Malays, is an acute outburst of unrestrained violence associated with homicidal attacks, preceded by a period of brooding, and ending with exhaustion and amnesia. The fury of the patient may be quite undirected, and he may strike down animals and men indiscriminately in his path. Yap states that *amok* is a standardized form of emotional release, accepted by the community, and indeed expected of the individual who is placed for some reason in an intolerably embarrassing or shameful situation.

#### Koro (Malay) or Su Yang (Chinese).

The patient suddenly becomes seized by the conviction that his penis is shrinking into his abdomen. According to popular belief, if this is allowed to happen, death ensues. Naturally the patient falls into a panic, and hastily resorts to various remedies. The orthodox way to forestall death is to clamp the penis in a wooden case, used for holding a jeweller's balance, or, failing this, to tie round the penis a red string, red being the colour successful in warding off evil. Inevitably a great commotion is caused, and the patient may be carried in great distress to hospital. Yap considers this illness to be an acute anxiety state, in persons with sexual conflicts and preoccupations, and states that it is probable that actual hysterical anaesthesia of the penis or some disturbance of the body-image occurs. There is a great wealth of folk-lore surrounding this illness,

which obviously must play a major role in determining the form of the patient's neurosis.

#### Psychic Contagions.

Psychic contagions, or mass outbreaks of a particular type of mental disorder, have been recorded in most countries. They were frequent in medieval societies, and still occur in closed, fervently religious communities, like convents, or in small, compact communities of easily excited and emotional people, like girls' boarding schools. One of the most famous outbreaks, and one which is fortunately recorded in remarkable detail, was the case of the Witches of Salem.

This occurred in Salem Village, Massachusetts, in a setting of a theocratic society under the domination of the Puritans, who preached a doctrine of hell and damnation as a punishment for sin. They were so preoccupied with their sins and the imminence of the Judgement that there was no room for pleasure in their lives. Satan was always present in their thoughts, and was an object of dread. In 1692 a small group of adolescent girls, no doubt as a reaction to the excessive restrictions placed upon their natural inclinations by so rigid a society, began to manifest unusual symptoms, such as trance-like states, fits, incoherent speech and so on. These would now be diagnosed as hysterical manifestations, but the village doctor was convinced that the symptoms were due to witchcraft. The girls were then asked to name their tormentors, so that they could be dealt with. They were at a loss at first, but as a result of some suggestions by their inquisitors they named several citizens as witches. The approval given them by public opinion stimulated them to greater efforts, and they named still more witches all of whom were judged to be guilty on the evidence of the girls. The witch-hunt gathered pace, and was aided by the fact that some of the alleged witches, apparently of hysterical temperament, entered thoroughly into the spirit of the proceedings and made full confessions of having attended witches' Sabbaths and persecuting innocent children. The illness spread until 50 persons in the district claimed to be afflicted by witchcraft; 250 citizens were imprisoned for witchcraft, 13 women and six men were hanged, and one old man was slowly crushed to death with heavy stones for refusing to plead at his trial. Many more would have been hanged had the girls not got completely out of hand and accused a retired judge of the court and the governor's wife of witchcraft. The saner elements in the community got the upper hand, and the governor closed the court and released all the prisoners. The girls themselves were quickly forgotten, and recovered equally as quickly.

Many other similar outbreaks have occurred, but I will content myself by mentioning some of the minor forms of psychic contagion which have occurred in modern times, and which will be familiar to you all. I refer, of course, to such things as flying saucers, swooning at the feet of crooners, tearing the clothes off Johnnie Ray, and the hunt for Communists in the United States under the leadership of Senator McCarthy.

#### Other Examples of Cultural Patterning of Mental Diseases.

There is another aspect of cultural patterning of mental diseases which must be considered. Yap makes the following statement:

It would be a grievous error to suppose that if a certain form of behaviour in some culture or other resembles insane behaviour it is necessarily abnormal. For instance, if a Hindu fakir behaves much like a catatonic schizophrenic in Britain, he need not necessarily be insane, since not only can he begin or stop his apparently catatonic behaviour at will, but such behaviour has a recognised place, and possesses some degree of social approbation in his own culture.

One further example might be given—the case of the Kwakiutls, a tribe of Indians of British Columbia. Among these people there is a great sensitivity to insult, so much so that every little misfortune or accident is regarded as an attempt by someone to insult them. The only redress for this imagined insult is to challenge the fancied enemy to a duel. During the duel each contestant attempts to destroy or give away more of his own property than his opponent, and the one who succeeds is the winner. During the duel the contestants make long speeches referring to themselves in excessively grandiose terms. There is no doubt that such behaviour in Sydney would be immediately,

and correctly, diagnosed as symptomatic of a major psychosis, but among the Kwakiutls this behaviour is expected by society.

Personality (and its disorders) is a reflection of the broad cultural setting in which it develops, but also of the subculture, and it is sometimes not realized how important subcultural influences are. As an example of what I mean, take the city of Sydney. The citizens of this city share many beliefs and attitudes and behave in ways which distinguish them from the citizens of, say, Melbourne or London or New York. But Sydney is far from being a homogeneous society, and many subcultures each characterized by its own beliefs and attitudes and mode of behaviour can be distinguished. The most obvious groupings which occur to us are those based on religion and locality, and we must all be familiar with the difference between, say, a devout Roman Catholic and a member of the Plymouth Brethren, between a resident of Wahroonga and a resident of Woolloomooloo, who all may at the same time be recognizably citizens of Sydney and nowhere else. The number of groups, all of which influence the attitudes of members while at the same time providing the cocoon of emotional support which is so necessary for us all, is legion. There are political, industrial, professional and sporting groups and innumerable others, and there are few of us who are not exposed to the influence of several of these subcultures. Some groups are very large, others very small. The smaller groups have an importance for outweighing their size, for they provide support and some feeling of security for people who are unable to find their needs met by larger groups, and are unable to adjust themselves to them. By the formation of a small society or some other sort of group, the people who differ from the majority of their fellows are able to meet in an atmosphere of mutual understanding and approval, which must act as a prophylactic against neurotic or psychotic breakdown. Undoubtedly many members of these minute societies are regarded by the public as highly eccentric, but without their societies they might easily become more seriously disturbed.

As an example, one might consider the recently publicized celebration of the Black Mass in Sydney. An isolated devil-worshiper in Sydney would be likely to be regarded as psychotic, and probably with some justification. However, if a group of like-minded people carry out their activities together, I think they must be considered as rather less abnormal. They are supported and encouraged by their fellows to hold their beliefs, and, after all, a belief becomes a delusion only when it is held in opposition to the subculture in which the individual exists. The mere fact that these people are capable of entering into satisfying interpersonal relationships within such a group shows that they are not really psychotic.

#### Discussion.

The influences of all these subcultures on mental disorder are only now coming to be thoroughly studied. One of the most common methods of approach has been the study of the effect of social class on mental health, and this has been used by Hollingshead and Redlich in the United States. Perhaps the most important discovery made by Kinsey was the wide variation in sexual attitudes and behaviour between the different social strata. This is a useful beginning, although even a social class is not homogeneous, and is made up of numerous subcultures. Whether we agree with the desirability of social classes or not, we cannot shut our eyes to the fact that social classes are an essential feature of our culture, and even in the so-called "classless society" of the Soviet Union there is a social class structure far more rigid than our own.

Some examples of the findings of Hollingshead and Redlich may be of interest, and it should be stressed that this is work which is still actively proceeding and seems to have great possibilities. They found a very significant relation between social class and the diagnosed prevalence of psychiatric disorders in the New Haven community. The highest social class contains 3.1% of the population, but only 1% of the psychiatric cases. The lowest class

includes 17.8% of the population, but 36.8% of the psychiatric patients. There seems to be a significant connexion between the type of psychiatric disorder and social class, the neuroses being concentrated at the higher levels, and the psychoses at the lower end of the class structure. The relationship between the prevalence of schizophrenia and social class was most pronounced, as this illness is very much more prevalent in lower than in higher social levels. The type of psychiatric treatment a patient receives is associated with his position in the class structure. The percentage of patients who received no treatment, or physical treatments only, was greatest in the lower classes. Psychotherapy, on the other hand, was concentrated in the higher classes.

Frumkin, of the University of Buffalo, reports that his researches suggest the following: that occupational prestige is more significant to mental health than occupational income; that occupational income is more significant to the mental health of men than of women; that lower-class occupational groups develop mental illnesses which are largely sociogenic in origin, while upper-class occupational groups develop mental illnesses which are largely psychogenic in origin.

In Chicago it was found that the total insanity rate was highest in the central areas characterized by social disorganization, and steadily declined towards the periphery of the city. Schizophrenia followed this pattern very closely, senile psychoses, alcoholism and general paralysis somewhat less closely, and manic-depressive psychosis and epilepsy not at all. The varieties of schizophrenia had a different distribution, paranoid schizophrenia being most common in communities which were highly mobile, and catatonic schizophrenia in the slum areas of the foreign-born. In Negro areas, the incidence of schizophrenia in Negroes was low, but in whites high; in white areas, the converse was true.

#### Conclusion.

These are examples, as I mentioned before, of research that is actively proceeding at present. I think it is of the greatest importance and interest, and I believe that a study of the subcultural influences on mental health and disorder within the community is likely to provide as much interesting material as, and material of far greater practical utility than, the numerous comparative studies of mental disorders in widely differing cultures. No research of this kind is going on in Sydney at present, and psychiatrists and social workers should make it their business to instigate investigations along the lines mentioned.

Limitations only of time, and not of subject matter, compel me to finish now, as it is obviously impossible to deal adequately with such a vast subject in one short talk, and so, very conscious of my numerous omissions, I will conclude by reiterating my opening statement that no case of mental disorder can be fully understood except in the context of the social setting in which it occurs.

#### Acknowledgement.

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### SOME SOCIAL ASPECTS OF MENTAL HEALTH IN THE AUSTRALIAN COMMUNITY.<sup>1</sup>

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A FEW years ago an eminent psychiatrist, addressing a group of British social workers, entitled his paper "Sweet are the Uses of Adversity". He had been inspired by Arnold Toynbee's "Study of History". He commended this to his audience, for the evidence it contained of the wonders to be found in man's powers of endurance and adaptation, in his long evolutionary struggle with his environment.

This psychiatrist questioned the effect upon man's capacity to meet challenges, and consequently upon man's mental health, of a social system in which there are highly developed social services and humanitarian organizations offering protection from the hazards of life.

If we equate mental health with ability to tolerate physical hardship and to battle against material obstacles, we may ask ourselves whether, in spite of all our advantages, we are as healthy in mind as our ancestors, who saved themselves from freezing to death in their progress northward, by achieving the ability to build a rough shelter and to make a fire. I think, however, that we may take heart if we compare their story with accounts of such recent adventures as the conquest of Everest and the voyage of the *Kontiki*, or with the plain unvarnished tale which was told in THE MEDICAL JOURNAL OF AUSTRALIA by the members of the Royal Australian Army Medical Corps when they returned from Malaya.

If mental health can be judged by the ability of the fittest to surmount physical perils and to sustain high adventure, we have perhaps no cause for concern. But we are still faced with the need to explain the increasing demand in our community for medical and psychiatric services, psychiatrists, social workers and protective social services.

The explanation of this may be, at least partly, in the fact that our community, along with others, is engaged in one of the most searching and challenging adventures in history: the attempt to put into effect a social philosophy, based upon two concepts: that it is the right of every individual to live, to assert his individuality and to be healthy and happy, because of his intrinsic value; and that it is the responsibility of the community at large to help individuals to enjoy this right.

The social implications of such a philosophy are numerous and very complex. I mention a few of those which suggest themselves to me, for their bearing on mental health.

1. The first to be considered is the effect upon parents and their children of the high value which is placed upon preserving the life and health of children, including the mentally and physically unfit, with the consequent responsibility which is placed upon parents to conform to principles and procedures which have been developed by medical science and child-care experts. That there are dangers as well as benefits in this situation has been discussed in the writings of pediatricians and psychiatrists, for instance, Professor J. L. Halliday, Professor J. C. Spence, Dr. J. Bowlby and Dr. Cedric Swanton.

2. Our community expects, assists, and indeed almost forces its members to live, on an average, to the age of

<sup>1</sup> Read at a meeting of the Section of Neurology, Psychiatry and Neurosurgery of the New South Wales Branch of the British Medical Association on November 15, 1955.



about sixty-five years in varying degrees of decay. Effects of this increased longevity seem to be particularly relevant to my theme, if they are seen in relation to the decline in the number of children per family, to the tendency to exclude the elders of the family from the role of educator, and to the development since the industrial revolution of a cash economy in which the family home plays a less vital part. In this changed society aging people have not yet acquired a role compatible with their needs and capacities.

3. In its search for health and happiness for all, our community has invented such devices as the minimum living wage, shorter hours and statutory requirements in housing standards. These, taken together, have led to higher costs in housing. Rising costs have led to partial replacement of a system in which free enterprise provided housing of unequal standard in response to public demand by one in which State enterprise provides houses of uniformly high standard at a rent which people are considered to be able to pay and in numbers limited by government policy. Whatever may be the advantages of such a system, and there are many, there are questions to be asked about it. For example, what is likely to be the effect upon people when their part in providing themselves with a home is reduced to that of filling in a form and trusting to the luck of the ballot?

4. Increased longevity and the conquest of many killing diseases have led to a dramatic increase in population. This, along with industrial advances directed to a higher standard of living, has contributed to the growth of large, impersonal, urban communities, in which families have been reduced to small conjugal groups. These families tend to move about as the men's work and their housing needs dictate, and to live in comparative isolation. Professor O. A. Oeser, in a recent study of a Melbourne community, makes some interesting observations on the social and emotional isolation of Australian suburban families and on the paucity of their relationships with neighbours and local interest groups.

5. Industrial progress and social change have led to increased complexity in the economic and social functioning of our community, with a tendency to centralization of control in industry, in the public services, and in other social institutions. Because of this, individuals are required increasingly to conform to large, impersonal forms of social organization, over which they have little control, and to be active in a variety of social roles which they have had no part in creating. Standardized, automatic processes in industry often leave little scope for the innate creative powers of people whose capacity for independent thought and judgement has presumably been developed by the use of educational services provided by the State.

6. In the interests of public welfare, the Australian community has established very large, complex and diverse public services, in which are employed thousands of people. These public servants must conform to standardized conditions of recruitment training, employment, promotion and control, laid down and administered by central authorities. These conditions apply to people who are widely scattered throughout the country, employed in a great variety of occupations, in differing communities. The application of principles of mental and industrial hygiene in such circumstances seems to me to be of particular importance, and also to present particular difficulties. There is evidence that this is recognized by some public authorities; for example, the Personnel Practices Branch of the Public Service Board offers efficient help and advice in the application of principles of industrial hygiene within certain sections of the Public Service. A professional staff, including psychologists, has specified principles of personnel practice, with particular reference to mental health, for the guidance of heads of departments and staff supervisors; they also offer a counselling service to individual workers who are in difficulties in such matters as passing examinations, work efficiency, discipline and interpersonal relationships. Extension of this kind of practice within the Public Service might contribute to the mental health of a large section of the

community, and lift the standard of public administration in this country.

I have attempted to suggest that the pursuit of humanitarian goals in itself has been a factor in producing social complexities which may have a profound effect upon mental health in this community. Social structure and function have also, of course, been profoundly affected in modern times by such factors as scientific advances made without reference to social purposes and producing malignant side effects, such as the means of waging war; large-scale movements of population following war; or economic complexities leading to epidemic unemployment.

For a variety of reasons, then, it seems evident that the individual in Australian society is confronted with many challenges to his powers of social adaptation; that mental health in a community such as ours is at least partly related to the ability of its individual members to carry out a variety of social functions, within a complex and changing social structure; and that the incidence of mental illness and social dependence should be seen in relation to conditions which were unknown in a simpler society, in which social patterns were relatively stable and well defined, the dull and the "queer" were permitted to remain in the kind of roles which Shakespeare assigned to them, and modern methods of diagnosing and treating mental disorder were unknown.

If problems of mental ill health within our society are to be attacked, there must be collaboration between people trained in various intellectual disciplines, such as medicine, the social sciences and social work. Also there is an argument for a strong and active Council of Mental Hygiene or some similar body, to encourage mutual understanding and effort between professional people, social administrators and other interested persons, such as employers, in the promotion of mental health.

I propose to devote the rest of this paper to a discussion of one kind of work in the field of mental health, in which there are opportunities for collaboration between doctor and almoner; that is, work in general hospitals with patients in whom physical and mental ill health are associated with failure or breakdown in social functioning. I shall refer particularly to the group of patients in whom capacity for social functioning is impaired by defects in temperamental endowment or by early emotional deprivation. I do so for the following reasons: firstly, because the number of these patients must continue to be great, at least until preventive medicine and principles of mental hygiene have been further developed; secondly, because I believe that too little attention is given to the interaction, in such individuals, of personal characteristics and attitudes with various kinds of social stress; thirdly, because doctors and social workers tend to be unduly pessimistic about the ability of such people to profit by help with psycho-social problems which precipitate or contribute to breakdown in their mental and physical health.

By psycho-social problem, used in this context, I mean an aggregate of past and present economic, social and personal factors affecting an individual's social functioning, considered in their relationship to each other, and to the immediate difficulty which has brought the patient to the doctor or the almoner. Each such problem is a unique dynamic entity which, I believe, calls for the closest possible study by the doctor and the almoner working together if the patient is to be given the help he needs and is able to use.

The doctor is equipped to deal with the physical elements and inner psychodynamics of the patient's personality. The almoner helps the patient to deal with factors in his social situation affecting his health and social functioning. Doctor and almoner collaborate in studying the psycho-social dynamics affecting the patient's attitudes to and relationships with his social situation. This kind of collaboration seems to me to strengthen the ability of both doctor and almoner to apply sound judgement to the psycho-social problems affecting their patients and the means of treating these. I believe that in this way some

patients with damaged personalities may be relieved of crippling anxiety and be helped to an improvement in their social functioning.

To illustrate my argument I quote from the cases of four patients who were referred to the almoner's department of the Sydney Hospital by members of the hospital medical staff.

Mrs. A., aged thirty years, married, with three living children, was admitted to hospital on the recommendation of a country doctor, who had been treating her for eight years for peptic ulcer, and who suggested operation. She was referred to the almoner for routine social study, which revealed the following facts. (i) The diagnosis of peptic ulcer followed the death of a child during her husband's absence at the war. The patient had resented his enlistment and had never been able to speak to him of the child's death, about which she still displayed strong emotion. (ii) There was evidence of emotional immaturity and ambivalence about her marriage; the patient had regressed into a semi-invalid role. Consultation between the physician, the psychiatrist, the almoner and the patient's husband helped the husband to give the patient the reassurance and emotional support she needed. She lost her symptoms, and has remained well for the three years during which she was followed up.

Mr. B., an ex-serviceman, aged twenty-five years, married, with one child, had had several admissions to hospital with a diagnosis of chronic eczema. He was referred by his honorary medical officer to the almoner for help with his psycho-social adjustment. His relationship with his wife was disturbed. He attributed this to his inability to provide a home and to having to live with his wife's relatives. Investigation of his social history revealed that he was a responsible, hard-working man with a somewhat rigid personality with strong defence mechanisms. A psychiatrist was consulted and recommended environmental help. Financial assistance was arranged to enable him to begin building his own house. His condition improved immediately, and his skin has remained relatively clear during the past three years.

Miss C., a European Jewess, aged eighteen years, was referred by the honorary psychiatrist to the almoner with a diagnosis of "immaturity reaction" and a request for help with social rehabilitation. She was grossly overweight, emotionally disorganized, unhappy in her family and social relationships and unable to keep a job. Her psycho-sexual adjustment was poor. It was found that since coming to Australia she had suffered from a severe sense of isolation and difficulty in adjusting herself to Australian conditions; this had led to aggravation of earlier difficulties with her mother. She has made constructive use of weekly interviews with the almoner over a period of twenty months. Her social adjustment has improved; in spite of underlying personality difficulties, she has shown herself to be capable of developing sustained social relationships and consistent interests in work and recreation.

Mr. D., aged forty-eight years, a married man with two children, was admitted to hospital from an outback town. He gave a history of intermittent attacks of diarrhoea for ten years. The diagnosis of ulcerative colitis was established. His honorary medical officer referred him to the almoner for help with social factors relative to his nervous tension. He gave a history of early emotional and social deprivations which had affected his heterosexual adjustment and deprived him of normal educational and vocational opportunities. His history suggested that his nervous symptoms were related to frustration in his employment in the Public Service, where he had a reputation for reliability and efficiency, but had missed promotion owing to a technicality. Social treatment consisted of helping the patient to obtain more congenial employment. This appears to have reduced his nervous tension, and his health has improved.

#### Summary.

An attempt has been made to suggest ways in which mental health in the Australian community is related to the ability of individuals to carry out a variety of social functions within a complex and changing society. Reference is made to the need for collaboration between doctors, social scientists, social workers and others in dealing with the social aspects of mental health.

Four cases are quoted to illustrate the interaction of personal and social factors in the mental health of individuals, and the value of cooperation between doctors and almoners.

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#### INFANT MORTALITY IN AUSTRALIA.

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In this paper I shall summarize the available Australian statistics on stillbirths and infant mortality as part of my survey on Australian mortality. The appearance of two volumes on infant mortality ("Studies I and II", 1954) from the offices of the United Nations has greatly facilitated international comparisons. It seems timely, therefore, to make a detailed study of the Australian statistics, as set out in *Demography*, the annual bulletin of the Bureau of Census and Statistics, Canberra. It will appear that the chief causes of infant deaths of the past have been overcome, a small residue of deaths being left principally in the first week of life. Some improvements of the vital statistics will be suggested with the aim of directing attention to the chief problems of infant mortality, those associated with prematurity.

#### Definitions.

The infant mortality is computed throughout this paper by dividing the number of deaths of children aged under one year by the number of live births in the same period. The fraction so obtained is multiplied by 1000 to give the infant mortality rate per 1000 live births. The rate is given per 1000 traditionally, but we shall find it convenient to give many of the rates as deaths per 1,000,000 to avoid the use of decimals and to avoid rounding off errors if it is desired to compute percentages without recourse to the original statistics. A preferable rate is obtained by relating infant deaths under the age of one year back to the corresponding births in a given period. However, data for such a computation are not at present available in

Australia and many other countries. An authoritative discussion of the definitions with a valuable bibliography has been given by Logan, Spiegelman and Salinas (Logan, 1953). In normal times when birth rates are not fluctuating rapidly, the two rates will give almost identical results ("Studies I"), especially in such a country as Australia, where most infant deaths occur in the first week of life. For international comparisons it is important to note the varying definitions of a live birth and infant death (Pascua, 1948).

#### THE INFANT MORTALITY IN AUSTRALIA.

In Table I are given the infant mortality rates in Australia for each ten-year period from 1881 to 1950 and for three single years since. The year 1881 is the starting point for the summaries in *Demography*. Statistics for years prior to 1881 can be obtained by consulting the official publications of the individual States. Pell (1867 and 1879) has given figures from which mortality rates can be readily computed. From Pell (1879), the infant mortality rate in New South Wales for the period from 1860 to 1875 was 101.5 per 1000 of all live births. The

TABLE I.  
Infant Mortality in Australia.

Period.	Male Infant Mortality Rates. <sup>1</sup>	Female Infant Mortality Rates. <sup>1</sup>	Masculinity of the Infant Mortality Rates. <sup>2</sup>	Infant Mortality Rates (Both Sexes Combined). <sup>1</sup>
1881 to 1890 ..	130.5	114.1	114	122.5
1891 to 1900 ..	118.8	101.9	117	110.5
1901 to 1910 ..	94.4	79.0	119	86.9
1911 to 1920 ..	74.7	60.0	124	67.5
1921 to 1930 ..	61.0	48.6	125	55.0
1931 to 1940 ..	44.6	35.2	127	40.0
1941 to 1945 ..	38.8	30.9	124	35.0
1946 to 1950 ..	30.1	23.7	127	27.0
1951 to 1953 ..	26.7	21.3	125	24.1
1951 ..	27.7	22.7	122	25.2
1952 ..	26.8	20.6	130	23.8
1953 ..	25.7	20.8	124	23.3

<sup>1</sup> Deaths per 1000 live births.

<sup>2</sup> The masculinity is equal to 100 times the male rate divided by the female rate.

rates were for males, 108.4, and for females, 94.3. Since 1881, there has been a steady decline in the infantile mortality in Australia, if the mortality is considered by periods. However, by combining the experience of different years we are ironing out the effect of epidemics and other unusual events happening in single years. The decline in the rates is not so uniform when single years are considered. Thus, for the ten years from 1881 to 1890 the rates per 1000 live births fluctuate as follows: 116, 135, 121, 125, 128, 126, 116, 116, 132 and 107. The general decline has continued into the most recent years. The rates for the period 1944 to 1953 show a rather steady decline, possibly due to the unimportance of specific infective diseases. The rates are 31, 29, 29, 29, 28, 25, 24, 25, 24 and 23. "Studies I" gives a graph of the infant mortality in Sweden from 1750 onwards. From 1750 to about 1810 the rates fluctuated around 200 per 1000, at which time there was a fall to a new level around 150 per 1000 until 1880. Since then the Swedish infant mortality rates have been declining. Another table of "Studies I" gives a comparison of the rates from various regions of the world over the years from 1915 to 1949. It may be considered appropriate to fit a line of the form  $y = a + bx$ , where  $y$  is the logarithm of the mortality rate,  $x$  is the calendar year and  $a$  and  $b$  are suitable constants fitted from the data;  $b$  has been tabulated for a number of countries on page 32 of "Studies I". It is unfortunate that common logarithms (that is, to the base of 10) have been used rather than the natural logarithms. If natural logarithms are used, an equation,  $y' = a' + b'x$ , of the same form, is obtained. The two coefficients are related by the formula  $b' = 2.3026 b$  and then  $100 b'$  is approximately the percentage rate of decline *per annum*. In Australia and

New Zealand the decline every year is about 2.8% of the existing rate. In other words, the infant mortality has been halved every twenty-five years or so throughout the period studied.

In Table I the infant mortality rate is given for each sex separately, as well as for both sexes combined. There is a difference in the resistance of the sexes to many diseases, which we leave to be discussed later.

#### Measles, Pertussis, Scarletina and Diphtheria.

In Table II are set out the death rates per 1,000,000 live births from the four principal specific infective diseases spread by the nose and throat. Of these, only pertussis (whooping-cough) has been of major importance since 1908. For all these four diseases, age at infection is of great importance. Suitable case fatality rates do not exist for Australia, but are readily available for England and Wales in the annual reports of the Registrar-General (Lancaster, 1952, a and b).

#### Pertussis.

The infant death rates for males have declined from 1735 per 1,000,000 in 1908 to 91 per 1,000,000 in the years 1951 to 1953. A similar decline has occurred in the rates for females. In each period the masculinity has been low, approximately 80. The reasons for this decline have been discussed by Lancaster (1952a) and by Burnet (1952). It is evident that immunization cannot be held responsible for the decline, which took place before immunization had been introduced; nor can medical care, since no specific therapy was available. Ecological factors such as later age at infection, better care and better nourishment of children, smaller families and absence of other debilitating infections, must all be considered. The low masculinity has been commented on already (Lancaster, 1952a) and reference has been made to an important paper and discussion (Hill, 1933).

#### Diphtheria.

The importance of diphtheria, never a leading cause of death at this age, also has declined. To the ecological factors considered in the case of pertussis we have to add the immunization of infants and the serum treatment of patients. However, we notice that the percentage decline in the death rates from diphtheria is no more rapid than in those from pertussis. "Studies I" rather over-emphasizes the importance of immunization in reducing mortality at this age. Those countries which have introduced immunization have also been subject to other changes, many of which have acted in a way interfering with the rapid spread of organisms from child to child, and so perhaps undue credit is given to immunization, although its importance cannot be denied as a prophylactic against disease in the next few years of life.

#### Measles.

Measles has been of less importance than diphtheria. It is probable that infections with measles are much less common in Australia than in England and Wales, as the form of the epidemics is greatly affected by the size of the urban aggregates. "Studies I" exaggerates when it states that the periodicity is typical of measles. This is a feature rather of diseases of short duration, solid immunity and large urban communities. It is not a feature of measles in Australia, as can be seen from Table II of Lancaster (1952b).

#### Scarlatina.

Scarlatina has been an unimportant disease in Australia as a cause of death, since 1908 at any rate (Lancaster, 1952b). Table II shows that it has caused only an occasional death in the years after 1940.

#### Infective Bowel Diseases.

The most important infective disease of infancy has been gastro-enteritis. The dysenteries and the typhoid-paratyphoid infections have been, perhaps, of less importance, although it has always been difficult to differentiate



TABLE II.  
Infant Mortality for Australia from Certain Infective Diseases.

Period.	Deaths at Ages under One Year per 1,000,000 Live Births.							
	Pertussis.		Measles.		Scarlatina.		Diphtheria.	
	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.
1908 to 1910 .. ..	1735	1987	222	180	57	18	279	246
1911 to 1920 .. ..	1456	1751	360	277	15	22	381	279
1921 to 1930 .. ..	1358	1672	224	147	38	25	345	263
1931 to 1940 .. ..	1009	1250	84	90	22	25	201	190
1941 to 1945 .. ..	672	729	114	120	3	3	120	87
1946 to 1950 .. ..	204	330	86	60	2	0	75	41
1951 to 1953 .. ..	91	107	36	45	0	0	16	33

these diseases in infancy from gastro-enteritis, and indeed it may be stated that the difference is often only one of definition. Typhoid mortality at other ages in Australia has declined notably (Lancaster, 1953a), and the rise in later years in Table III in the infant mortality from typhoid-paratyphoid infection possibly reflects bacteriological standards rather than disease. Table III shows that dysentery, so diagnosed, has not been a leading cause of death.

TABLE III.  
Infant Mortality in Australia from Infective Bowel Diseases.

Period.	Deaths at Ages under One Year per 1,000,000 Live Births.					
	Gastro-Enteritis.		Dysentery.		Typhoid and Paratyphoid.	
	Males.	Females.	Males.	Females.	Males.	Females.
1908 to 1910 .. ..	23,879	20,274	0	6	11	18
1911 to 1920 .. ..	18,225	14,864	10	9	12	5
1921 to 1930 .. ..	10,630	8,354	153	97	3	2
1931 to 1940 .. ..	2,744	2,107	69	51	3	0
1941 to 1945 .. ..	2,057	1,488	19	8	5	14
1946 to 1950 .. ..	1,412	1,077	15	20	4	7
1951 to 1953 .. ..	810	694	29	10	26	24

Gastro-enteritis had been a leading cause of death until recently, but in the period 1951 to 1953 it was responsible for less than one death per 1000 births. It is clear that the reduction in mortality from this cause alone has been responsible for a decline of about 21 per 1000 in the infant mortality rate. Some of the factors underlying the decline in gastro-enteritis mortality are public health measures such as better water supplies, fly control and so on; but here again general ecological factors seem to be at work. It appears certain that therapy has been of minor importance in this decline (Lancaster, 1953a).

#### Infective Disease of the Nervous System.

In Table IV are set out the death rates from infective diseases of the nervous system.

#### Poliomyelitis.

Poliomyelitis may be briefly dismissed as a cause of death at this age, even though in individual cases maternal infection is serious for both mother and child.

#### Encephalitis and Brain Abscess.

The difficulty of separating out brain abscess and encephalitis has been already discussed (Lancaster, 1954a). There has been relatively little change in the mortality under this heading.

#### Meningitis.

All deaths from meningitis other than tuberculous meningitis have been combined under one heading, as it is very difficult to compare deaths from individual bacteriological forms of meningitis over the years because of changing emphasis on bacteriological diagnosis. The increases in mortality over the war years and over the years from 1951 to 1953 should especially be noted, as it is often believed that mortality from this cause has been almost completely abolished since the introduction of the sulphonamides.

#### Tetanus.

Tetanus in earlier times was of some importance in mortality in infancy, owing perhaps to cord infections (Lancaster, 1953b), but it is now of no importance at this age. Nevertheless tetanus immunization at this age is a very useful health measure, as there is a large risk in childhood especially for boys. Tetanus immunization can be carried out in the form of the triple immunization against tetanus, pertussis and diphtheria.

#### Tuberculosis.

Tuberculosis in infancy is chiefly tuberculous meningitis. Little is known about the relative importance of bovine and human types as a cause of infant and child mortality

TABLE IV.  
Infant Mortality from Infective Nervous Disease.

Period.	Deaths at Ages under One Year per 1,000,000 Live Births.							
	Poliomyelitis.		Encephalitis and Brain Abscess.		Non-Tuberculous Meningitis.		Tetanus.	
	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.
1908 to 1910 .. ..	— <sup>1</sup>	—	23	0	1633	1578	324	258
1911 to 1920 .. ..	—	—	67	49	1763	1381	246	163
1921 to 1930 .. ..	16	23	134	98	876	673	84	48
1931 to 1940 .. ..	12	18	59	33	465	336	20	14
1941 to 1945 .. ..	8	6	82	73	683	559	21	8
1946 to 1950 .. ..	11	16	96	70	390	303	32	20
1951 to 1953 .. ..	33	24	101	65	565	433	13	3

<sup>1</sup> Not separately listed in these years.

in Australia. However, it is probable that the human type has been of predominant importance (Lancaster, 1950). A large decline is evident in Table V, from approximately one per 1000 to about one-twentieth of that value.

#### Syphilis and Gonorrhœa.

Congenital syphilis was of some importance in the earlier years, but is of almost negligible importance now as a cause of death. Syphilis affords one of the few examples of therapy controlling a disease (Lancaster, 1955). Gonococcal infections have caused few deaths in Australia over the years of the survey.

TABLE V.  
Infant Mortality from Tuberculosis, Syphilis and Gonorrhœa.

Period.	Deaths under One Year of Age per 1,000,000 Live Births.					
	Tuberculosis.		Syphilis.		Gonococcal Infections.	
	Males.	Fe-males.	Males.	Fe-males.	Males.	Fe-males.
1908 to 1910 ..	967	744	1149	822	6	0
1911 to 1920 ..	530	419	733	610	30	16
1921 to 1930 ..	319	286	329	296	12	5
1931 to 1940 ..	192	148	171	123	7	0
1941 to 1945 ..	173	109	74	50	3	6
1946 to 1950 ..	58	97	36	23	0	0
1951 to 1953 ..	49	58	16	7	0	0

#### Influenza and Diseases of the Respiratory System.

The differential diagnosis between influenza and other infections of the respiratory system is difficult, and perhaps does not reflect any real aetiological differences. The influenzal deaths are included among the diseases of the respiratory system in the sixth revision of the "International List of Causes of Death". Deaths from diseases of the respiratory system have always formed a substantial proportion of the infant mortality, and their relative importance has increased because some other causes, notably gastro-enteritis, have declined more rapidly.

However, over the years of this survey, 1908 to 1953, the decline in the mortality from influenza and diseases of the respiratory system has been equivalent to a decline of almost six deaths per 1000 births. Only in gastro-enteritis has there been a greater absolute reduction in the infant mortality rates.

#### Erysipelas and Septic Infections.

That erysipelas has virtually disappeared as a cause of infant mortality is shown in Table VII. The classes "diseases of the skin and cellular tissue" and "diseases of the bones and organs of locomotion" of the International List may probably be taken to represent chiefly non-specific infections due to septic organisms, such as the staphylococci and streptococci. Here again the mortality has fallen. But there is a minor rise in both purulent infections and infections of the skin, cellular tissues and bones in the most recent years available. This rise is probably associated with the epidemics of staphylococcal infections that have been reported from many clinics scattered throughout the world.

#### Accidental and Violent Deaths and Deaths due to Ill-defined Causes.

In Table VIII are given the death rates from violence, accidents, acute poisonings and other external causes, also the death rates from diseases peculiar to the first year of life.

In the year 1910 there was a change of assignment of deaths from some causes, previously grouped under the rubric "other external violence", whereby these deaths were assigned to one of the rubrics of the class "diseases peculiar to the first year of life". In other words, some

forms of negligence and lack of care had been thought to be wilful, and so the corresponding deaths had been referred to the class of violent and accidental deaths. Some deaths previously assigned to the class of deaths due to uncertain causes were after 1910 also assigned to the diseases peculiar to infancy. There is a corresponding increase in the diseases peculiar to infancy between the periods 1908 to 1910 and 1911 to 1920. Since 1911 few

TABLE VI.  
Infant Mortality from Influenza and Diseases of the Respiratory System.

Period.	Deaths under One Year of Age per 1,000,000 Live Births.			
	Influenza.		Diseases of the Respiratory System.	
	Males.	Females.	Males.	Females.
1908 to 1910 ..	353	240	7719	6026
1911 to 1920 ..	348	306	7011	5763
1921 to 1930 ..	253	236	6872	5697
1931 to 1940 ..	306	259	5420	4272
1941 to 1945 ..	247	274	4647	3854
1946 to 1950 ..	180	134	3253	2763
1951 to 1953 ..	— <sup>1</sup>	— <sup>1</sup>	2139	1856

<sup>1</sup> Included among diseases of the respiratory system.

deaths of infants have been assigned to ill-defined causes. The mortality from violence and accidents has fallen, but only moderately, since 1911. The official statistics of violent and accidental deaths of children in Australia have been reviewed by Clements (1952). He has also carried out a survey of fatal and non-fatal accidents in children by means of a questionnaire to parents (Clements, 1955a, b, c and d). A detailed analysis of violence by cause is given in these papers. Bowden (1950) and Bowden and French (1951) have shown, as have some English observers, that some deaths attributed to this class are really due to infections. In infancy, burns and scalds, accidents as a passenger in motor vehicles and drownings each cause about one-quarter of the deaths in the class of violent and accidental deaths, with falls making up the bulk of the remainder.

TABLE VII.  
The Infant Mortality from Purulent Infections, Erysipelas et cetera.

Period.	Deaths under One Year of Age per 1,000,000 Live Births.					
	Erysipelas.		Purulent Infections.		Infections of the Skin, Cellular Tissue and Bones.	
	Males.	Fe-males.	Males.	Fe-males.	Males.	Fe-males.
1908 to 1910 ..	154	162	119	78	478	378
1911 to 1920 ..	195	171	116	82	341	269
1921 to 1930 ..	199	187	76	57	385	298
1931 to 1940 ..	85	93	74	62	232	193
1941 to 1945 ..	19	6	112	92	133	120
1946 to 1950 ..	4	0	90	41	56	43
1951 to 1953 ..	0	3	118	58	104	45

#### Malformations.

The mortality from malformations has already been discussed (Lancaster, 1951). The death rate has remained rather constant at about four deaths per 1000 births. As the general infant mortality has fallen, the relative importance of this class of deaths has increased.

#### Diseases Peculiar to the First Year of Life.

The deaths in the class of diseases peculiar to the first year of life form the bulk of the neonatal deaths. The death rates from this class are given in Table VIII. The

TABLE VIII.  
The Infantile Mortality from Malformations, Violence and the Diseases Peculiar to the First Year of Life.

Period.	Deaths under One Year of Age per 1,000,000 Live Births.							
	Violence and Accidents.		Malformations.		Diseases Peculiar to Infancy.		Ill-Defined Causes.	
	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.
1908 to 1910 .. ..	2025	1494	3077	2563	28,726	22,711	2298	2353
1911 to 1920 .. ..	981	832	4014	3171	32,243	25,418	82	100
1921 to 1930 .. ..	767	691	4713	3681	29,403	22,913	22	37
1931 to 1940 .. ..	918	798	5069	3915	24,989	19,417	35	37
1941 to 1945 .. ..	808	659	4661	4088	22,163	17,124	69	84
1946 to 1950 .. ..	771	518	4110	3467	17,059	13,548	56	38
1951 to 1953 .. ..	718	598	4200	3517	16,158	12,606	124	120

rates have fallen, but not so rapidly as the death rates from all other causes combined. As a result, in recent years about three-quarters of all deaths are due to diseases in this class. In earlier years this class contained three rubrics, according to the rules of the International List, namely:

No. 151. Premature birth, congenital debility, icterus and sclerema.

No. 152. Other diseases peculiar to early infancy.

No. 153. Lack of care.

About 80% of deaths in this class were assigned to No. 151 (second revision of the International List).

Under the sixth revision of the International List the class has been elaborated to 17 rubrics, each of which is further subdivided so that explicit mention can be made as to the presence or absence of prematurity.

Rubrics 765 and 772 are not really causes of death, but have been included in the list in order that it may serve as a classification of morbidity as well as mortality. The authors of the sixth revision of the International List have made it clear that they regard the problem of prematurity as the most important in modern infant mortality. The Study Group (1954) of the World Health Organization concluded in fact that "in the vast majority of cases the exact cause of neonatal death is not known and that the diagnoses given on death certificates are without nosological value. The desirability of scientific research in this ... was emphasized". In other words, many of the neonatal deaths given on the death certificate are modes of death, for the causes lie often elsewhere—in the health of the mother, the confinement, and so on.

The class is subdivided into rubrics as follows:

- 760. Intracranial and spinal injury at birth.
- 761. Other birth injury.
- 762. Post-natal asphyxia and atelectasis
- 763. Pneumonia of the newborn.
- 764. Diarrhoea of the newborn.
- 765. *Ophthalmia neonatorum*.
- 766. *Pemphigus neonatorum*.
- 767. Umbilical sepsis.
- 768. Other sepsis of the newborn.
- 769. Neonatal disorders arising from maternal toxemia.
- 770. Erythroblastosis.
- 771. Haemorrhagic disease.
- 772. Nutritional maladjustment.
- 773. Ill-defined.
- 774. Immaturity with mention of any other subsidiary condition.
- 775. Immaturity subsidiary to some other cause.
- 776. Immaturity (unqualified).

Discussions of the causes of death and of the proper handling of the infant are given by Campbell (1950), by Meredith (1950) and by Cuthbert (1949); the last-mentioned has concentrated her remarks more on the treatment of later infancy.

#### Disease of Other Systems.

For completeness, it is necessary briefly to mention disease in certain of the systems, the death rates from which are given in Table IX.

#### Cancers, Tumours and Leuchæmia.

Malignant disease is unimportant as a cause of death in infancy. The rates in Table IX show some increase in the later periods of the survey, but this may well be due to changes in diagnostic methods.

#### Nervous System.

Deaths from affections of the nervous system exclude deaths due to cerebral abscess and encephalitis, infective disease and cancers. However, even in the period 1951 to 1953 a large proportion of the deaths were due to convulsions and the proportion was much higher in the earlier periods. We may conclude that the chief cause for the decline was the virtual disappearance of convulsions. Of course, the real cause of convulsions was not usually known in individual cases, but was often meningitis, *otitis media* or other undiagnosed infective disease.

#### Circulatory System and Genito-urinary System.

The death rates from disease of the circulatory system and of the genito-urinary system have fallen.

#### Gastro-intestinal System.

From the diseases of the digestive system of the International List we have taken out gastro-enteritis. The remaining deaths from diseases of the gastro-intestinal system are chiefly due to hernia and intestinal obstruction, and to a rather vague rubric, "other diseases of the stomach". There have been considerable declines in the death rates from diseases in this system.

#### Comment.

This survey of infant mortality shows that the problems of infant mortality have altered. It may be said that as causes of infant mortality in Australia all the infective diseases have been overcome. There seems to be no immediate prospect of reducing the number of deaths from congenital abnormalities either by treatment or by prevention. However, there is still much room for reduction of the death rates from diseases peculiar to the first year of life, as can be seen by comparing the mortality in the general population with that of the infants of "booked" mothers in the best obstetric clinics. Useful steps in the solution of this problem would be improvements in the recording of vital statistics and of hospital statistics, which would draw more attention to prematurity. The International List has given a lead by allowing explicit mention of prematurity. However, the increased number of rubrics in the class of deaths peculiar to the first year of life should not lead us to believe that a clear idea of aetiology will emerge from the official statistics in their present form. In a later section the possible improvement in the form of the Australian vital statistics on infant mortality and stillbirths will be discussed, and it



TABLE IX.  
The Infantile Mortality from Some Miscellaneous Diseases by System.

Period.	Infantile Deaths per 1,000,000 Live Births.									
	Cancer, Tumours, Leuchæmia.		Nervous Disease.		Circulatory Disease.		Genito-Urinary Disease.		Gastro-Intestinal Disease.	
	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.
1908 to 1910	97	48	4556	3409	279	198	273	210	1303	846
1911 to 1920	49	40	2766	2063	179	116	286	190	1821	1326
1921 to 1930	76	40	1423	1086	122	84	246	212	1302	909
1931 to 1940	93	90	506	397	77	67	261	186	773	540
1941 to 1945	70	86	481	349	96	67	159	114	715	424
1946 to 1950	87	111	373	283	62	45	116	38	540	364
1951 to 1953	111	82	333	305	95	48	88	41	493	340

will be noted that some of these improvements have already been introduced in Scotland, England and Wales, in New Zealand and in the United States of America.

#### STILLBIRTHS.

At present there is no mention of stillbirths in *Demography*, although a page of the "Year Book of the Commonwealth of Australia" is devoted to them. Stillbirths have been notifiable in Western Australia since 1930, in New South Wales since 1935, in South Australia since 1937 and in Victoria since 1953. In Queensland and Tasmania information is obtained by "notification of stillbirths for various purposes", perhaps for social service and hospital claims. The stillbirth rates are given for Australia for the years from 1947 to 1952. The rates are 21.3, 20.3, 19.2, 19.0, 18.6 and 17.0 stillbirths per 1000 births (live and still).

More detailed information is available for the State of New South Wales in the "Official Year Book of New South Wales", Number 54, 1955. Stillbirths are tabulated by sex and nuptiality. The stillbirth rate is higher for ex-nuptial births and for the remainder of the State (that is, excluding Sydney). In the period from 1936 to 1940 the stillbirth rate for New South Wales was 28.7 per 1000 live births. Since then, there has been a steady decline to 16.5 per 1000 in 1953. The masculinity of stillbirths is high, of the same order as that of the infantile deaths, about 120—that is, 20% higher in the male than in the female births. Some studies seem to suggest that this high masculinity of fetal deaths persists as far back in intrauterine life as sex can be diagnosed with accuracy. Many stillborn infants die during delivery, and it seems very appropriate to use the term "perinatal mortality", due to Peller (1948), to include both stillbirths and neonatal deaths.

#### POSSIBLE IMPROVEMENTS IN THE OFFICIAL STATISTICS.

The simplest improvements in the Australian official statistics that can be made are, first, the reconciliation of particulars on the birth certificate with each infant death or stillbirth, and second, the addition of the weight to the particulars on the birth certificate or on the notification of the stillbirths.

First, the birth certificate contains the following important details about the mother: (i) date of present marriage; (ii) age; (iii) parity; (iv) number of births at the present confinement. These details are, of course, not available on the death certificate of the infant, since the same certificate is used for infant deaths as for adults. The difficulties of reconciling the birth and death certificates are not great, especially since the great bulk of the infant deaths are neonatal, and both birth and death are reported by the same hospital to the same district registrar. Moreover, these changes are effected within the office of the Registrar of Births and Deaths, whatever may be his title in the particular State. It is unfortunate that in some States in Australia the Registrar-General is not also responsible for the statistical tabulations, so that interdepartmental cooperation is required. However, this

is not an insuperable difficulty. Greater interdepartmental difficulties than this are involved in the United States, where vital statistics now are the responsibility of the Health Service, and in New Zealand, where the medical statistics are compiled by the Department of Health.

Some slight departure from present practices is involved in obtaining the weight. However, practically every infant is now weighed at birth as a routine procedure, and there is little additional work in adding the birth weight to the maternal details of age, parity *et cetera*. Legal and social difficulties connected with statements of the last menstrual period do not apply to notification of the weight. Potter and Adair (1949), state that "the number of deaths in any series is closely related to the number of infants in the various weight groups". Thus they believe that weight is of the greatest importance and also is a more reliable and convenient measure than presumed length of gestation. Their table 17 shows that 77 deaths out of 215 deaths were in infants weighing under 1500 grammes (13,615 births at the Chicago Lying-In Hospital for the years 1941-1943 and 1946). It is interesting to note that their neonatal mortality rates of approximately 16 per 1000 were thus much below the United States average of approximately 25 per 1000 for the same years, although, as Peller (1948) remarked, there was comparatively little difference between the rate in the best clinics and the rates in the United States generally. Potter and Adair (1939) gave their stillborn and neonatal mortality rates as 23 and 21 per 1000 over the period from May, 1931, to January, 1938, as compared with a general United States average of 36 and 32 per 1000. They (Potter and Adair, 1949) comment that the main difficulties in international comparisons are the following: (i) the lack of a uniform classification in relation to age and weight; (ii) the use of an individual classification, frequently a heterogeneous clinical grouping rather than one which is based on scientific and comparable data; (iii) the "correction" of figures to eliminate from the mortality rates various factors which the investigator wishes to exclude; (iv) the lack of adequate post-mortem examination.

As we are concerned here with vital statistics rather than with clinical studies, we shall not consider Potter and Adair's fourth point. Their first point is solved by using a system of weights going up by units of 500 grammes—under 500 grammes, 500 to 999, 1000 to 1499 *et cetera*. Their second is solved in vital statistics by using the International List as a guide. The third factor, the "correction" factor, is more difficult to eliminate. The chief difficulty is in the "pre-viable" infants, which many authorities desire to exclude from their own statistics on the grounds that they cannot be expected to survive. However, even among infants born with weights below 1000 grammes there are some survivals (Potter and Adair, 1949; Meredith, 1950). It is desirable, further, to have some record of pregnancies terminating at this period, with the aim of removing the disturbing causes. Therefore, it is better to leave all liveborn in the collected figures, even if later in discussion one speculates as to what the rate might have been without them. Fortunately

TABLE X.<sup>1</sup>

Chances of Survival and Causes of Dying According to Degree of Maturity at Birth (New Zealand), July to December, 1952.

Weight Group. (Ounces.)	Live Births.	Stillbirths.	Total Births.	Stillbirth Rate. (Number of Stillbirths per 1000 Total Births.)	Number Dying.			Neo-natal Mortality Rate— Deaths in First Month of Life (per 1000 Live Births).	Total Stillbirths and Neo-natal Deaths per 1000 Total Births (i.e. Numbers Dead by End of First Month of Life per 1000 Total Births).	Causes of Death: Rates per 1000 Live Births.					
					First Day.	After First Day and Before End of First Week.	After First Week and Before End of First Month.			Congenital Mal- formations.	Birth Injuries.	Asphyxia and Pneumonia.	Maternal Toxemia.	Hemolytic Disease.	All Other Conditions.
Less than 50 oz. . .	132	44	176	250	50	14	3	510	630	15	31	51	15	5	393 (b)
50- . . . . .	201	23	224	100	27	14	2	210	295	19	40	74	11	4	62
70- . . . . .	788	28	816	34	23	11	4	48	81	4	12	23	1	2	6
90- . . . . .	4,068	32	4,100	8	23	16	5	11	19	4	2	3	(a)	(a)	1
110- . . . . .	8,441	73	8,514	9	17	14	14	5	14	2	1	1	(a)	(a)	(a)
130- . . . . .	4,650	27	4,677	6	12	7	7	6	11	1	1	3	(a)	(a)	(a)
150 oz. or more . .	1,054	19	1,073	18	7	3	2	11	29	3	6	(a)	(a)	1	1
Not stated . . . .	4,460	175	4,635	38	32	17	9	13	50	3	1	3	(a)	(a)	4
Total . . . . .	23,794	421	24,215	17	191	96	46	14	31	3	2	4	(a)	(a)	4

(a) Less than one. (b) Mainly "prematurity, unqualified".

<sup>1</sup> From "Report on the Medical Statistics of New Zealand for the Year 1952" (Table IX), Department of Health, Wellington.

the numbers of pregnancies terminating at this time—that is, with a fetus at a weight of 400 to 999 grammes—are not large, these weights corresponding to a fetal age of from twenty to twenty-eight weeks; and so in practice there is a fairly clear line between the early abortions and the later perinatal deaths.

No doubt implicit in this discussion of Potter and Adair (1949) is also one of definition, which I have already partly discussed (Lancaster, 1950) using the discussion of Pascua (1948) as a guide. These difficulties will be largely resolved if the different countries follow the recommendations of the Expert Committee (1950) of the World Health Organization, whose recommendations were summarized as follows:

First to be studied was the term "live birth", which is interpreted differently in different countries. Since the French language has no equivalent for the term "live birth", the subcommittee prepared a definition which could apply equally to "live birth" and "live born":

Live birth is the complete expulsion or extrating from its mother of a product of conception, irrespective of the duration of pregnancy, which, after such separation, breathes or shows any other evidence of life, such as beating of the heart, pulsation of the umbilical cord, or definite movement of voluntary muscles, whether or not the umbilical cord has been cut or the placenta is attached; each product of such a birth is considered live born.

Fœtal death was defined as follows:

Fœtal death is death prior to the complete expulsion or extraction from its mother of a product of conception, irrespective of the duration of pregnancy; the death is indicated by the fact that after such separation the fetus does not breathe or show any other evidence of life such as beating of the heart, pulsation of the umbilical cord, or definite movement of voluntary muscles.

#### STATISTICS OF INFANT MORTALITY FROM OTHER COUNTRIES.

##### United States of America.

The Report (1955a) makes the following statement:

An item on birth weight was added to the birth certificates of most States in 1949, and by 1950 the birth records of all but one State (Massachusetts) included this item. Therefore, by matching birth and death records and combining data from these records, it became possible to obtain information on mortality by birth weight.

Data on neonatal deaths for the individual registration areas were prepared by these areas according to certain

agreed table plans. Data on births for these areas (except Connecticut) were tabulated by the National Office of Vital Statistics. For the limited characteristics for which rates are shown in this report, however, the comparability of the birth and death data is believed to be good.

In formulating the program for the collection of data on matched births and neonatal deaths, the Public Health Conference on Records and Statistics recommended that certain principles be followed in the preparation of the tabulations to ensure accurate and comparable data. These principles were stated as follows:

1. Neonatal death records included in the tabulations for an area should relate to all infants born in that area.

2. Tabulations on neonatal deaths prepared on the basis of year of birth are preferable to those based on year of death. However, this is not an important issue and tabulations prepared on either basis should be accepted.

3. Unmatched neonatal deaths should be tabulated along with matched neonatal deaths.

The Report (1955a) then goes on to discuss registration completeness, which varied by race and State and perhaps also was most deficient for the infant or stillborn fetus of very small weight. Weight was measured by pounds and ounces but tabulated in the metric system. Race was classified by the customary policy in the United States. As a result tabulations of both births and deaths are available for the whole reporting area by race, sex of infant, plurality of birth, weight of infant and cause of death. Also tabulations by several of these factors at a time are given.

Dunn (1955) has given a discussion of the 1956 revisions of the standard birth and death certificates in the United States of America. These do not ask for any information not available on the standard Australian certificate, except duration of pregnancy in completed weeks and weight of infant at birth. An appendix to the live birth and fetal death (that is, stillbirth) certificates gives a number of spaces for statements regarding the mother's health in pregnancy, rhesus factor grouping, birth injury or complication and congenital malformations.

##### New Zealand.

A Report (1955b) from New Zealand is also of interest in this respect, for it shows that there, too, weight is recorded. Further, the Report gives stillbirths by causes

suggested by the sixth revision of the International List. It is evident that considerations of space have prevented more tabulations being given, but Table IX of the Report (1955b) is reproduced here as our Table X, as an indication of the type of information that can be obtained by the simple improvements of adding the weight to the details given on the birth certificate and reconciling the birth and death certificate details.

#### Scotland.

In England and Wales and in Scotland, the age of mother and parity were not recorded on the birth certificate prior to the passage of the *Population (Statistics) Act* of 1938. But the annual reports of the Registrar-General for Scotland now contain many tables on neonatal mortality and stillbirths, giving details of the effects of social class, age and parity of the mother, weight of the child, and place of residence on the neonatal and stillbirth rates.

#### England and Wales.

Similar tables are not available for England and Wales as yet, but the office of the Registrar-General has cooperated with a group under Dr. J. N. Morris appointed by the Medical Research Council to inquire into social and other influences on the infant mortality and stillbirth rates. Weight records are available to these workers also. Details of this work are given by Morris and his co-workers (Morris and Heady, 1955a and b; Heady, Daly and Morris, 1955; Daly, Heady and Morris, 1955; and Heady, Stevens, Daly and Morris, 1955). This series gives a valuable account of social factors and the effect of age and parity of the mother. In making comparisons with other work, it should be noted that these authors have confined their attention to single births.

#### BIOLOGICAL FACTORS IN REPRODUCTIVE WASTAGE.

We may follow the general lines of the discussion of the "Studies II" on the influence of some general social, economic and epidemiological factors on the infant mortality and stillbirth rates.

#### General Mortality.

There is a general relation between the infant mortality rates and the mortality rates at other ages. "Studies II" tests the existence of this relation by correlation techniques. It shows, for example, that the infant mortality rate is highly correlated ( $r = 0.81$ ) with the inverse of the expectation of life at age one year. Other high correlations can be obtained by the use of life table measures or various forms of the standardized death rates. It has often been considered that a low infant mortality would react unfavourably later at higher ages on the health and mortality rates. This has appeared, however, not to be the case ("Studies II", 1954; Cuthbert, 1950). In fact, high infection rates in infancy do not appear to be an appropriate test of general biological fitness.

#### General Fertility.

There is a general relation between fertility and the infant mortality, which has been commented on by many authors. However, although there is a positive correlation between fertility and infant mortality, when different countries are compared, there is no need for this correlation to hold for any given country, as a change in fertility pattern may be favourable to infant survival, for example, if it leads to a decreased proportion of *primiparae*.

#### Age of Mother, Birth Order and Rapidity of Breeding.

The "Studies II" gives tables by Sutherland (1949) working in England, and by Yerushalmy (1938) in New York, on the influence of age and parity on the stillbirth and infant mortality rates. Sutherland (1949) showed, for example, that stillbirth rates were less in *multiparae* than in *primiparae* of the same age, and this tends also to hold for neonatal mortality rates (Yerushalmy, 1949). Yerushalmy (1945) further concluded that short intervals

between births as well as unduly long intervals increased the stillbirth rates.

#### Multiple Births.

The stillbirth and neonatal death rates are higher in multiple births than in single births ("Studies II", Sutherland, 1949; Report, 1955a).

#### Prematurity.

Prematurity has special importance in those countries in which infant mortality is almost entirely neonatal. Yerushalmy (1938) showed the great importance of prematurity, using New York statistics for 1936. But similar findings have been presented by numerous workers (Royal Commission, 1950; Report, 1955a; Report, 1955; Report of the Registrar-General of Scotland for 1953).

#### SOCIAL AND ECONOMIC FACTORS IN REPRODUCTIVE WASTAGE.

We may follow "Studies II" in discussing social and economic factors, noting that many of these topics have been discussed by Australian workers in an Interim Report (1944).

#### Urban-Rural Differential.

When infective disease was the predominant cause of mortality, urban death rates were higher than rural. But in Sweden (Swedish Statistical Year Book, cited by "Studies II") now the reverse is true. The urban rate has been less than 90% of the rural in Sweden since 1930. A similar position holds in Australia (Cuthbert, 1949). It seems that availability of expert services in the cities may be responsible for this difference, especially in the treatment of prematurity.

#### Illegitimacy.

Illegitimacy is treated at length by "Studies II" and by Cuthbert (1950). The illegitimate have a less favourable neonatal and post-natal experience, but there are complicating factors such as the parity and age of the mother. More enlightened treatment of this problem by the community generally, especially improved adoption practices, has narrowed the difference between the legitimate and illegitimate.

#### Nutrition.

Nutrition is believed to be of some importance in reducing the stillbirth rates (Royal Commission, 1950). Nutrition was the subject of a Special Report (1948) in Australia.

#### Housing, Literacy and Intelligence, Income, Occupational Status and Employment.

Housing, literacy and intelligence, income, occupational status and employment are all discussed by "Studies II". Many studies on these subjects can be found in the *Journal of the Royal Statistical Society* in past years.

#### Principal Implications.

The "Studies II" go on to discuss social implications such as the cost of bearing and rearing a child, the loss of potential wage earners or citizens from infant death, the effect of infant mortality changes on the life table and a few specialized general considerations. We have not space here to go into these. The "Studies I" and "Studies II" and the Royal Commission (1950), and in Australia the Interim Report (1944) and the Special Report (1948), have discussed many of these topics.

#### SUMMARY.

The decline of the infant mortality in Australia has been analysed as part of a general survey on mortality in Australia. The virtual disappearance of the infectious diseases as killers in infancy has been recorded. Only congenital malformations and causes peculiar to the first year of life now still remain important. In the present state of knowledge little can be done to lessen the deaths from malformations, but the other deaths and stillbirths



offer a field for further clinical and statistical inquiry. In particular, improvements in the vital statistics are possible without undue additional cost. In this field, Australia has fallen behind New Zealand, Scotland, England and Wales and the United States of America. The opportunity has been taken to review some important publications of the United Nations, and to summarize the recommendations of some committees of the World Health Organization.

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## HYPNOTISM IN GENERAL PRACTICE.

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WITH the endorsement of hypnotism recently by the Medical Research Council of the Privy Council and its recommendation that the art should be taught to all members of the medical profession, it may be of some interest to learn of the experience of a medical practitioner in the use of hypnosis in a general private practice.

I have been using hypnosis now for approximately eighteen months. I obtained several text-books on the subject, and proceeded to attempt hypnosis on a selected group. I found at once that I was successful in inducing hypnosis, and now, after constant practice, I have improved my technique, but still feel that I would greatly benefit from practical instruction by an expert.

I make mention of how I learned, because I want to stress the point that any medical practitioner should be able to learn hypnosis easily if he cares to read a few books, cultivate his voice, and put in some practice.

There is no doubt that the family doctor is in a very favourable position to hypnotize his patients, because of the faith and trust they have in him. They know him well, and know that he will do nothing to harm them or reduce their dignity. In some cases, after a preliminary explanation, they readily agree to be hypnotized.

In this article I wish to stress that I am a general practitioner, and do not lay claims to any special ability in psychiatry et cetera.

My objective is to show what uses can be made of hypnosis in general practice, and towards this end I will use several headings, and cite some illustrative cases.

## Obstetrics.

In obstetrics I have had very mixed results. In the first place, none of the text-books gave an exact description of the technique to be employed. They mostly stated that it was of value and went no further. I found, therefore, that I had to start from the beginning and work out a technique of my own. I learned early that only the good subjects were worth while, and that even with them I had to be present for several hours beforehand. Needless to say, I looked around for some easing of the time factor.

It is easy with a good subject to hand over to a third person, and she will respond to this person exactly as she would to the hypnotist. The natural selection here would have been members of the staff, but I found that they were a little chary. From this point I began to hand my subjects over to themselves (auto-hypnosis). This again is fairly easy to do, and now, at the commencement of labour, my patients hypnotize themselves, relax their muscles, and remain asleep. After the confinement, I erase the whole memory of their labour from their minds. This, of course, smacks of Grantly Dick Reed, but I venture to suggest that it is a great deal more positive. Most obstetricians will agree that to describe uterine contractions as "pains" has unfortunate psychological effects on the expectant mother's mind. It builds up fears, and she expects to have pain at her confinement. It was found early, therefore, that the use of the word "pain" had to be avoided, and out of this I found that I had to create a whole new conception of childbirth in the mother's mind. Even when she was hypnotized the fear of pain still existed in her mind, and to say to her "You will have no pain" did not seem to have the desired effect. Eventually I was forced completely to change the patient's idea of childbirth. Many mothers are taught that when labour commences, they will start to have pains, and that these pains will force their baby out. They are fully aware of the disproportions between their baby's head and their own passages, and so they approach confinement with terror.

In my experience with hypnotism, I have endeavoured to give the baby a personality of his own and speak to the mother as follows:

When your baby is ready to be born, he will start to crawl out of you, and when you feel him starting to crawl, draw up your legs, take a deep breath, and give him a good long hard push on his back to help him on his way. He is only a little fellow, and he needs your help; as his head comes down, your muscles will all be relaxed, and when they are relaxed, you know then that there will be plenty of room for him to be born, and because your muscles are relaxed you won't feel a thing. Now when your baby gets tired of crawling out of you and he takes a little rest, then you also take a little rest, and completely relax, and when you feel him starting to crawl again, then give him another good hard push.

It will be seen that this attitude teaches the mother to believe that her baby will take part in his own birth, and will crawl out of her—all she has to do is to help him; there is no suggestion of pain, or that her passages will be too narrow, or that she will have to do all the work and push him out against tightly resisting muscles.

CASE I.—My patient was a moderately good subject. I rotated the head, applied forceps, and delivered the child. I subsequently had to perform a manual removal of the placenta. She had no sedatives or other anaesthetic. Several times she moaned a little, but I erased her whole memory of the labour, and to this day she has no idea of what occurred.

CASE II.—This patient was a good subject. However, I arrived when she was having strong contractions, and found it impossible to induce any real depth of hypnosis. She had considerable delay, and I subsequently applied forceps, for which she was given a general anaesthetic.

CASE III.—This patient made an ideal subject for auto-hypnotism. She put herself to sleep early in labour, and continued in this state until the membranes ruptured, when she woke suddenly. I arrived in time to deliver the head.

This case illustrates two points: (i) the hypnotized obstetric patient has to be watched more carefully; (ii) the obstetrician must be prepared to spend a great deal more time than usual with his patient.

All in all, my experience with maternity cases has been as follows:

1. Only good subjects are really suitable.
2. The best way, and certainly the greatest saver of time, is to teach them auto-hypnosis.
3. Patients have to have several sessions in their pre-confinement period (up to one hour in each session), in order to train them.
4. In a busy practice it just is not possible to spare the time to conduct these sessions.
5. There are other means of obtaining relief from labour pains—for example, the use of pethidine, "Trilene" *et cetera*.

## Psychosomatic Conditions, Anxiety States, Mental Conflicts, Hysteria.

The field of psychosomatic medicine is undoubtedly the one in which hypnosis will prove to be of most value. In every practice there are cases that fall into these categories, and they are a perennial problem to the general practitioner. Mostly he prescribes phenobarbitone, and if he can spare the time, tries to talk to them and readjust them. If they become very seriously affected, they may eventually receive shock treatment and finally end up with periods of institutional treatment. I repeat what I said in an earlier paragraph, that I have no claims to any specialty; but I do believe that the general practitioner has a much closer contact with these patients and is in a better position to observe their suffering than any other. He becomes aware of causes in many cases, and so is able to suggest the right line of approach in order to achieve a cure. These are the types of case which make it essential that every practitioner should learn hypnosis, because through its use he can at last do something constructive for patients. I quote here only a few illustrative cases.

CASE I.—A woman, aged thirty years, came in complaining that she could not stop sighing; she had been sighing for ten days and ten nights; in the surgery she interrupted her conversation every few seconds with a loud inspiratory sigh. Her history revealed that she had been a passenger in a motor-car, and a large motor truck had swung round the corner and almost run into them. She remembered being shocked and taking a sudden gasp. A day or so later the sighing started. I hypnotized her, and the sighing ceased at once. Whilst she was still hypnotized, I pointed out to her that she had stopped sighing and would not do it again, even when she awakened. I also erased her memory of the near accident from her mind. On awakening she was completely cured.

CASE III.—This girl, aged eighteen years, was a congenital diabetic. In the last few years she had developed diabetic retinitis, and was slowly becoming blind. She would sit disconsolately in a chair with her hands folded on her lap and would not do anything. She neglected her personal appearance, and only reluctantly helped her mother in the house. She would not go to dances or other social events because she had always to be led. Her mother had done everything possible to try to help her, including taking her to many different doctors who had all told her that nothing could be done. The patient herself had heard all these opinions. I formed the opinion that whilst I could do nothing to halt the progress of her blindness, I could at least improve her outlook. I thought also that her blindness could have been greatly intensified by the repeated suggestions made in her presence when the above-mentioned opinions were expressed.

After hypnosis, her vision improved about 30%, and amongst other things she was able to read large characters at a normal distance and she could see the clouds in the sky, and noticed that it was blue in colour. After a few more sessions, she had her hair waved, was making new frocks, was helping her mother in the house, and was going to dances and speaking without embarrassment to boys. I have now persuaded her to try to learn some useful trade before she becomes totally blind.

## Stammering.

In cases of stammering I have been only fairly successful—all the patients have improved about 50%, but I have not so far effected a complete cure. This may be due to the following factors: (i) There is no doubt that speech

training is an important part of the cure, and my knowledge of that subject is not extensive. (ii) The older the patients are, the more permanent their impediment becomes, and the more difficult it is to remove. (iii) I have not had the time to treat the patients as often as I should like.

**CASE I.**—This man had stuttered extremely badly. At times he was quite inarticulate. He was an excellent subject. I asked him to visualize the most peaceful scene he had ever set eyes on, and then asked him to describe it—he stuttered. In an effort to discover some possible early cause for his condition, I reduced him through various ages, and finally had him sitting on his mother's knee at the age of one year. I felt certain that at this age he would not stutter. I asked him to look up at his mother and say to her his first word, which would be "mummy". He put his little arms around her neck, and said, "m-m-m-mummy". I was keenly disappointed, but imagine my astonishment the next day when his mother told me that her children had never called her "mummy", they had always called her "daddy". In the words of our Australian vernacular, there are times when you feel "yer can't win". However, with this man I noticed that he was trying to speak whilst sucking in his breath—I proceeded therefore to give him breathing exercises whilst he was hypnotized and also trained him to speak only whilst he was breathing out. I put my voice on the tape recorder (which, incidentally, is a great time saver), and he had his entire lesson, with me taking only an occasional look at him. He is still under treatment and at present can conduct a fairly good conversation with a moderate degree of stuttering.

#### Anæsthesia.

In anæsthesia again there are other eminently satisfactory ways of obtaining relief from pain, and hypnosis is really unnecessary.

I have cauterized warts, inserted implants, opened abscesses, and, of course, extracted teeth, all under hypnosis.

After a while one knows the good subjects, and so the foregoing procedures may be carried out only after the minimum amount of time has been spent on hypnotizing the patients.

Under this heading would be a good opportunity to describe a method of giving painless injections which I have developed. I will describe it in some detail, as other practitioners may like to try it, as an initial experiment to test their own powers as hypnotists. I will describe an intramuscular injection into the deltoid, but the same technique would naturally apply to other sites.

Usually the patient will hold his arm out quite rigidly, and look with some trepidation at the needle. Ask him to relax his arm completely, look away, and keep listening to your voice. Hold his arm with your left hand, and with the syringe in your right hand, press one of your fingers (I use the little finger) on his deltoid on the spot you have chosen for the injection, and rub the skin with a fairly firm circular motion. Now speak these words in a confident but monotonous tone:

Listen carefully to me and relax your arm completely. Now, where I am rubbing you with my finger the skin is going quite dead, and you have no feeling in it at all. Now it is going deader, and deader, and deader, and deader, right down to the bone, and when I stick the needle in you won't feel a thing, not a thing.

Repeat this sequence two or three times, and then plunge your needle in. (I agree that "deader" is a horrible word, but I have found it is the word most readily understood by the patient, and early in hypnosis one learns to use only words which are quickly grasped by the patient's mind.) Do not be disappointed if the patient says he felt the lot. I am successful in only three out of five in children over six, and something less than this in adults. Try at least a score of patients before becoming discouraged.

I should be glad to hear from anyone who tries the methods described.

#### Summary.

I have given an outline of my experiences in the use of hypnosis in general practice, and described a few illus-

trative cases. To all who try out hypnosis in obstetrics I would recommend them to try out the technique described.

Finally I have detailed a method of giving painless injections which is successful in a great number of patients. This is a simple technique, and I would like to feel that everyone who reads this article will try it out at the first opportunity.

### Books Received.

[The mention of a book in this column does not imply that no review will appear in a subsequent issue.]

"Therapeutic Use of Artificial Radioisotopes", edited by Paul F. Hahn, Ph.D.; 1956. New York: John Wiley and Sons, Inc. London: Chapman and Hall, Limited. 9" x 6", pp. 424, with illustrations. Price: \$10.00.

There are 19 chapters by many different authors.

"Health Observation of School Children: A Guide for Helping Teachers and Others to Observe and Understand the School Child in Health and Illness", by George M. Wheatley, M.D., M.P.H., and Grace T. Hallock. Illustrations by Barbara Pfeiffer; Second Edition, 1956. New York, Toronto, London: McGraw-Hill Book Company, Inc. 9" x 6", pp. 507. Price: \$6.50.

The first edition was published in 1951.

"Textbook of British Surgery", edited by Sir Henry Souttar, C.B.E., D.M. (Oxon.), F.R.C.S.; Volume I: The Abdomen; 1956. London: William Heinemann (Medical Books), Limited. 9½" x 7½", pp. 555, with illustrations. Price: 105s.

This text-book will be issued in three volumes; each volume will be complete in itself. The whole work is planned to cover the entire field of surgery—diagnosis, pathology, prognosis and treatment. In this volume there are 14 contributors.

"Paediatrics for the Practitioner: Supplement 1956", under the general editorship of Wilfrid Gaisford, M.D., M.Sc., F.R.C.P., and Reginald Lightwood, M.D., F.R.C.P., D.P.H. London: Butterworth and Company (Publishers), Limited. 9½" x 6½", pp. 130, with illustrations. Price: £2 6s. 6d.

A supplement to "Paediatrics for the Practitioner", already reviewed in this journal, will appear as an annual volume containing original articles and a cumulative "noter-up".

"X-Rays: Their Origin, Dosage, and Practical Application", by W. E. Schall, B.Sc., F.Inst.P., Hon. M.S.R.; Seventh Edition; 1956. Bristol: John Wright and Sons, Limited. 9½" x 7½", pp. 338, with many illustrations. Price: 42s.

Intended mainly for the training of radiographers.

"Laughter and the Sense of Humor", by Edmund Bergler, M.D.; 1956. New York: Intercontinental Medical Book Corporation. 9" x 6", pp. 509. Price: \$5.00.

The volume "attempts to put the analytic theory on laughter and wit up to date".

"Dynamics of Psychotherapy: The Psychology of Personality Change; Volume I: Principles", by Percival M. Symonds, Ph.D.; 1956. New York, London: Grune and Stratton. 9" x 6", pp. 222. Price: \$5.50.

Volume II will deal with "The Process" and Volume III with "The Procedure".

"Adrenal Function in Infants and Children: A Symposium", edited by Lytt I. Gardner, M.D.; 1956. New York, London: Grune and Stratton. 8½" x 5½", pp. 231, with illustrations. Price: \$6.75.

There are 15 chapters and 18 contributors; there is a discussion on each chapter.

"Practical Hematology", by J. V. Dacie, M.D. (Lond.), M.R.C.P. (Lond.); Second Edition, 1956. London: J. and A. Churchill, Limited. 8½" x 5½", pp. 234, with 43 illustrations. Price: 20s.

The first edition was published in 1950.



## The Medical Journal of Australia

SATURDAY, JULY 21, 1956.

All articles submitted for publication in this journal should be typed with double or treble spacing. Carbon copies should not be sent. Authors are requested to avoid the use of abbreviations and not to underline either words or phrases.

References to articles and books should be carefully checked. In a reference the following information should be given: surname of author, initials of author, year, full title of article, name of journal, volume, number of first page of the article. The abbreviations used for the titles of journals are those adopted by the Quarterly Cumulative Index Medicus. If a reference is made to an abstract of a paper, the name of the original journal, together with that of the journal in which the abstract has appeared, should be given with full date in each instance.

Authors who are not accustomed to preparing drawings or photographic prints for reproduction are invited to seek the advice of the Editor.

### SOME FACTS ABOUT MEDICAL REGISTRATION.

IN Australian medical schools the facts of medical registration are taught to students in their lectures on medical ethics. When the student graduates he knows what registration by a medical board means to him—he knows, or should know, what benefit he receives from registration, what obligations it imposes on him, and what penalties await him if he departs from the path of ethical and moral rectitude. Graduates from other countries have probably not been taught in their student days anything about registration in Australia, but it is hard to imagine a sensible man or woman coming to Australia to practise medicine without learning the full significance of registration. Anyhow, graduates forget, whatever their origin, and sometimes entertain peculiar ideas. A recent incident provides an excuse for reference to this subject. A graduate of a British medical school practising in New South Wales wrote a letter to the Editor for publication. He stated that the daily Press had recently referred to the visit to Australia, for professional purposes, and presumably for gain, of two surgeons who had presumably qualified in the United States of America. He wanted to know: (a) whether the medical qualifications of the surgeons in question were registrable in Australia; (b) whether the surgeons were in fact registered according to law; (c) whether they had paid their annual roll fee as required; (d) whether the law was waived in their cases; or, if not, (e) whether proceedings would be taken against them as unqualified and unregistered persons; and (f) whether the doctors who aided and abetted them were not liable to prosecution as accessories, or at least to receive a "warning notice" from the Registrar, seeing that they had acted as "cover" for unregistered practitioners. When a reply was sent to the correspondent he wrote that in his opinion many did not know the facts and suggested their promulgation.

To begin with, no medical qualifications are registrable in Australia as such. Registration is a matter for each individual State and for the Federal Capital Territory,

and the qualifications necessary to registration vary in almost every instance. Registration in one State does not automatically entitle a practitioner to registration in another State. The medical board effecting the registration is a statutory body appointed by the Government of the State, and is in no way connected with any organization of which medical practitioners voluntarily become members. Registration is not an essential to medical practice. Any person, medically qualified or not, is able to practise medicine provided he does not put himself forward as being a legally qualified medical practitioner. It may be mentioned in passing that this remarkable fact is in great contrast to the state of affairs associated with the treatment of animals. No person other than a registered veterinary surgeon is allowed to treat for gain a pathological condition in an animal, at least in some States. The Federal Council not so long ago had before it correspondence about an incident in which a medical practitioner, in the absence of a veterinary surgeon, set a fracture in the leg of a valuable dog and was taken to task for so doing. Registration gives a medical graduate power to sign a death certificate, to sue for fees and to prescribe certain drugs. The first five clauses of our correspondent's letter are thus answered. He asks a question about "covering". This is an important matter, and one about which the General Medical Council of Great Britain takes a serious view. The General Medical Council, though without jurisdiction in this country, is the body which sets the pattern for most of the enactments concerned with medical practice in the Australian States. Its regulation dealing with "covering" is as follows:

Further in regard to the practice commonly known as "covering", the Council gives notice that any registered medical practitioner, who by his presence, countenance, advice, assistance, or co-operation, knowingly enables an unqualified or unregistered person (whether described as an assistant or otherwise) to attend or treat any patient, to procure or issue any medical certificate or certificate of death, or otherwise to engage in medical practice as if the said person were duly qualified and registered, is liable to be judged as guilty of "infamous conduct in a professional respect" and to have his name erased from the Medical Register under the said enactment.

From this it will be concluded that in all probability the Australian practitioners referred to by our correspondent in his clause (f) would technically be guilty of "covering". But laws have to be administered with common sense. No medical board in Australia would find guilty of "covering" a practitioner who was responsible for the bringing of a world-renowned expert into the country to treat a certain patient, or who assisted such an expert if he was brought in by anyone else. If a famous expert came into the country and set up practice, quite a different view would be taken of practitioners who enabled him "to attend or treat any patient". In all these instances of supposed infringement of a medical Act a charge has to be laid. It would be interesting to see the short shrift that would be given to a charge laid in respect of the actions about which our correspondent writes. Another fact which is often forgotten has to do with registration in Great Britain. Many recent graduates go to the Old Country for study and experience; sometimes they forget that if they want to be registered by the General Medical Council of Great Britain they have to be registered in the country in which they graduate—in regard to Australia this means

the State in which their medical school is situated. For example, a graduate from the Sydney Medical School who goes to Queensland and is registered there and is not registered in New South Wales will be refused registration by the General Medical Council.

One final point must be mentioned which concerns New South Wales practitioners only. The legislature has recently instituted an annual registration fee of one guinea to be paid by any practitioner who wishes to remain on the register. This measure was far from popular with medical practitioners, who argued that as there had always been no annual registration fee, there should never be one. It was explained at the time that the annual fee would be used to bring the register up to date and keep it correct. The improvement that has been so far effected must be obvious to the most casual observer—no longer are the names of deceased practitioners to be found in it and the names of others who have left the State are no longer included. The Medical Board sends a reminder to practitioners when the annual fee is due to be paid. Whether practitioners like it or not, the law requires the payment of this fee. If any are foolish enough to put payment on one side through inadvertence or to default in payment by deliberate intent, they should take care that they sign no death certificate or do anything else permitted to them by virtue of their registration. If they do any of these things they may find themselves haled before the courts because of their neglect.

## Current Comment.

### SURGERY AND PAROTID TUMOURS.

TUMOURS of the parotid salivary glands are relatively infrequent and are found most commonly in the female. Attention is usually drawn to the presence of the tumour when obstruction arises in the duct and is followed by infection of the gland. Parotid tumours may be either benign or malignant, though the distinction between the two is sometimes difficult. There appear to be various grades of malignancy and several distinct histological types according to the one or more particular tissues involved. The mixed tumours have, in particular, given rise to difficulty in diagnosis and treatment. They tend, as do all parotid tumours, to remain well encapsulated, they may be found anywhere in the region of the parotid gland, and they have a tendency to recur after apparent successful removal. The mixed tumours may arise from primitive embryonal tissue and may show signs of frank malignancy. The treatment of parotid tumours is complicated by the near presence of other important tissues, especially the seventh cranial or facial nerve. W. S. McCune<sup>1</sup> suggested in 1951 that mixed parotid tumours might be regarded as benign lesions with a strong tendency towards recurrence. The recurrence might, in fact, be a secondary tumour arising from another group of embryonal cells. The mixed tumour begins usually anterior to the external auditory canal and much of it extends upwards behind the mandible to the floor of the skull. The tumour may grow slowly for thirty years or more without metastasizing or invading surrounding structures. Carcinoma of the parotid grows more rapidly, though it still has the tendency to remain encapsulated in the early stages. The fifth and seventh cranial nerves and the mandible may soon be involved. Lymph node metastases in the neck are sometimes found. McCune considered that surgery was more efficient and safer than radiation in the treatment of these tumours. In his series of 27

cases of mixed tumour and seven of adenocarcinoma, two of the mixed tumours recurred, and in five instances the seventh cranial nerve was damaged. Operations in this series were followed by deep X-ray therapy.

D. Riessner<sup>2</sup> suggested a new method of approach in the surgical treatment of the parotid gland. In particular, the cutting of the anastomosis between the facial and auriculo-temporal nerves rendered the formation of fistulae impossible. Riessner considered that mixed parotid tumours were essentially benign, but that they approached the border-line of malignancy and should be removed surgically as soon as they appeared.

In discussing the prevention of injury to the facial nerve, R. S. Pollack<sup>3</sup> wrote in 1954 that a structure of importance in recognition was the posterior facial vein which arises superior to the parotid and travels downwards through its substance, but is unattached to the gland at its inferior pole. Running on the surface of the vein or just anterior to it, and occasionally crossing it as it emerges from the parotid gland, is the marginal mandibular branch of the facial nerve. This intimate association of the two structures occurs in the neck just below the angle of the mandible. The significance of the nerve is not purely cosmetic, in that it serves the corner of the mouth, but it also serves in identification of the facial nerve itself. By tracing the branch upwards for two or three centimetres the main trunk of the facial nerve is encountered and dissection is safely facilitated.

R. Hunter<sup>4</sup> pointed out that radical surgery with removal of the facial nerve is not justifiable on the grounds that conservative surgery is followed by a high recurrence rate. Conservative treatment of parotid gland tumours of mixed type may be simple enucleation, excision plus removal of a narrow margin of gland tissue, or enucleation followed by post-operative irradiation. Simple enucleation may be followed by a recurrence of the tumour in about a quarter of the cases; the best results have been obtained by the method of combined enucleation and post-operative irradiation. Of a series of 42 patients with mixed parotid tumour, 30 were treated by this last method and their progress was followed for periods of up to seventeen years. In no case was there a definite recurrence, though in one this possibility was suspected in a patient who died from other causes five years after the parotid tumour treatment.

Most recently, M. Lyle,<sup>5</sup> in discussing the surgical considerations of parotid tumours, suggests that the type of treatment must depend on the nature and extent of the tumour. Some, such as haemangiomas, are treated most efficiently by radiotherapy; in others various extents of surgical interference are necessary. The haemangioma and lymphangioma are the most frequent parotid tumours of the young. Mixed tumours usually occur in older people, though one of Lyle's patients with such a tumour was aged fourteen years. Malignant lesions are predominantly found after the age of fifty years. In his series of parotid tumours, 72% of the patients were female. Thirteen of his 70 patients had been operated upon previously and recurrence had taken place one or more times. Lyle suggests that when the tumour is outside the capsule, well encapsulated near the surface, or on the surface of the parotid, simple enucleation is the safest and most adequate procedure; 38 of his patients were treated in this way. For tumours seated deeply in the superficial lobe, superficial lobectomy is preferable, though there are the dangers of facial nerve injury and of subsequent fistulae and Frey's syndrome. On the other hand, in partial lobectomy the avoidance of secondary complications may be easier. If the tumour is located in the deep lobe or is malignant or diffusely infiltrated throughout both lobes of the parotid, total parotidectomy is the operative procedure of choice and the only one which will produce a cure. In the series, 46 of the tumours were of the mixed type, of which 25 were well encapsulated with no signs of malignancy, and the rest showed varying

<sup>1</sup> *Arch. Surg.*, December, 1952.

<sup>2</sup> *Arch. Surg.*, January, 1954.

<sup>3</sup> *Brit. J. Surg.*, January, 1954.

<sup>4</sup> *Am. J. Surg.*, March, 1956.

<sup>5</sup> *Arch. Surg.*, May, 1951.

grades of malignant activity, three being definitely "microscopically malignant". Of the four adenocarcinomata in the series, only two were operable, and radical neck dissection revealed no involved glands. Two patients with lymphosarcoma were treated by radiotherapy with apparent success. Three cases of saccoidosis of the parotid gland were found, there were no other similar lesions and each tumour was removed easily by enucleation. In the whole series of 70 patients there was one death after radical dissection for carcinoma, when haemorrhage blocked the pharyngeal airway the day after operation. In eight cases, damage to the facial nerve occurred despite dissection, and Lyle suggests that ligation of the external carotid artery will produce a less vascular field, and hence less trauma to the facial nerve, which is commonly injured by swabbing, hot packs, drying and traction. Lyle finally suggests that the particular approach to each parotid tumour can be made only when the nature of the tumour is known. In this connexion a frozen section taken at the time of operation will reveal the degree of malignancy in the tumour and hence indicate the extent of the necessary operation.

### THE NATURE OF CANCER.

CANCER is a cellular aberration distinguished by autonomy and anaplasia, that is, by disregard for normal limitations of growth and by loss of normal organization and function. Many experiments by many observers have shown the similarities between cancer cells and normal cells, but few have made clear the difference. S. Graff in a volume of "Essays in Biochemistry" presented to Professor H. T. Clarke on the occasion of his retirement as Professor and Head of the Department of Biochemistry at the College of Physicians and Surgeons, Columbia University, New York, United States of America, has endeavoured to combine experimental observations and plausible speculations to obtain a picture of the nature, the cause and the cure of cancer. The growth of a cancer has often been likened to that of embryonic tissue. Rapid growth is a common but not invariable feature of cancers. Embryonic development consists, in the early stages at any rate, of rapid cellular development. This is characterized by high oxygen consumption which rises gradually during development. In the early stages of embryonic development there is a very great increase in the number of cells, each with its nucleus, and it would appear that DNA (deoxyribonucleic acid) is being made at a prodigious rate, but actually there is little or no increase until the late gastrula stage. This division can take place under anaerobic conditions, so that the energy obtained from glycolysis alone is sufficient to meet the requirements for division. No real growth or synthesis takes place in this stage.

The cancer cell, on the other hand, has an inordinate growth obligation, but it lacks not only a reserve of substances necessary for growth and differentiation, but also the capacity to make them. Although the cancer cell has an increased capacity for anaerobic glycolysis, this is not enough to compensate for its inadequate oxidative energy generation mechanisms. Cancer cells are incapable of metabolizing either acetate or pyruvate. Cancer cells depend on oxidative mechanisms for growth and existence. The most rapidly growing tumours are those in blood-rich areas and the centre of a cancer undergoes necrosis because of lack of oxygen. Cancer cells appear to be deficient in oxidative mechanisms, particularly those high energy conversion enzyme systems required for differentiation. The cause of cancer is not necessarily related to interference with normal oxidative behaviour. Mutagens cause cancer, but cancer is only one of the possible mutational responses to injury or other factors. Mutant cells often lack the ability to survive; but some may do so by adaptation, but only by losing the ability to mature. The azo-dye carcinogens deprive liver cells of those proteins required for growth, regulation. Graff describes the mammary carcinoma which occurs in mice, particularly some strains. Cross-breeding experiments made it appear

that the disease was an inherited condition, but further work showed that it was necessary to postulate an extra-chromosomal factor which is transmitted with the milk of the nursing mother. This proves to be a virus which has been isolated. Graff asks whether one should not consider the proposition that all forms of cancer are cellular reactions to infectious processes. This idea is by no means new, but what is new is the suggestion that the presence of the virus in the cancer cell is wholly fortuitous, since the mutation produced by virus aggression is self-perpetuating. This looks like one of those hypotheses which cannot be proved.

There is not much in what has gone before to indicate possible methods of cure and prevention of cancer. Most of the experimental work being done on the cure of cancer is directed towards the synthesis of compounds which will either destroy or modify cancer cells preferentially by growth antagonism.

Normal differentiated cells do not have to divide; cancer cells apparently do. A number of compounds have been tried which interfere with the synthesis of nucleic acids. For example, 8-azoguanine competes with guanine or perhaps inhibits xanthine oxidase which appears to be necessary for the synthesis of guanine. This and other substances of like nature are too poisonous to be used in man. A number of drugs have been produced which selectively attack either growth or differentiation of cells, but there is as yet no explanation which is generally acceptable for their mode of action, and the present methods of drug trial are purely empirical. The author suggests that therapy be directed towards energy cycle mechanisms.

### CHOLESTEROL AND FAT METABOLISM IN NUTRITION AND DISEASE.

In recent years the fate of sterols in the human body and the part which they play in normal physiology and in the pathological processes of disease have leaped into such prominence in medical literature that investigators are faced with an array of references and whole battalions of different thoughts and conjectures. Having adopted cholesterol as a focal point in biochemical and nutritional investigation, one finds it difficult to see how medicine ever got on without it. At any rate, fat metabolism has achieved importance in the correlation of disease processes, although the exact fitting of the pieces of the physiological jigsaw is by no means completed. Five articles published together have dealt with many aspects of the vast problem. R. P. Cook states that sterols are to be found in all living organisms with the exception of certain bacteria. The sterols are widely found as the free alcohols and as esters, normally with the higher saturated and unsaturated fatty acids. The so-called phytosterols are found in plant tissue and consist of sterols combined with carbohydrates and with an ether linkage. Free sterols and their esters are always associated with the other lipids such as the glycerides and phospholipids, and these in turn are associated with protein to form the lipoproteins. The importance of cholesterol in the transport of fatty acids is shown by the presence of cholesterol esters, and between the various lipids there may be an exchange esterification, the upsetting of the normal balance being reflected in the development of the lipidoses. Cholesterol is a precursor of several important compounds, including the bile salts, some sex hormones and adrenal cortical steroids. Cholesterol may be a "convenient storage equilibrant", though the mechanism of such a role is obscure and speculative. The cholesterol molecule may form a basic part of the cell architecture, particularly that of the cell membrane. In addition, cholesterol acts as a static insulating agent in nerve tissue. Sterols present in skin secretions and faecal matter may have an action, due to the shape of the molecule, in the role of protection and lubrication. Finally the sterols may play some essential part in normal growth.



Animals differ markedly between species in their ability to absorb cholesterol; in man the absorption is relatively poor, which suggests the importance of esterification. Plant sterols are poorly absorbed and, by competitive inhibition of the esterification reaction, the absorption of exogenous cholesterol is decreased.

J. A. Lovern discusses the difficulties and methods of investigating cholesterol and associated lipids. The use of compounds of cholesterol labelled with the isotopes of hydrogen and carbon has done much to facilitate metabolic studies, though the evaluations are exceedingly complex. The mechanism of cholesterol synthesis in the animal is steadily being elucidated by study of the methyl and carboxyl carbons of radioactive acetate.

G. S. Boyd and M. F. Oliver suggest that, from experimental evidence, when sterol is absent from the diet, the plasma cholesterol is derived almost exclusively from hepatic synthesis; in some species the testes, spleen, kidney, lung and adrenals seem to withdraw and to utilize the plasma cholesterol. Cholesterol appears to interchange between the plasma and the intestines and the liver, but the transfer from the plasma to certain extrahepatic tissues appears to Boyd and Oliver to be irreversible. The widely important acetyl coenzyme A is probably also involved in sterol biosynthesis. The use of carbon isotopes and soluble enzymes will probably in the long run reveal the stages involved in cholesterol biosynthesis. At the present time it appears that squalene and hence isoprenoid synthesis are involved, and this produces speculation on analogous pathways in carbohydrate and fat metabolism. Much of the cholesterol synthesized in the liver is discharged into the plasma, and overloading may be associated with the clinical manifestations of atherosclerosis; the lipids of the atherosclerotic plaques are at least partially derived from the circulating cholesterol. The plasma cholesterol is largely associated with two globulin fractions. The ratio between these  $\alpha$  and  $\beta$  lipoproteins may be disturbed and become a factor in the development of atherosclerosis, and in fact, a significant difference in plasma ratios between young atherosclerotic and non-atherosclerotic humans has been reported. Thus, an increase in the  $\beta$  lipoprotein fraction may be correlated with the finding of atheroma, though the factors governing the survival of the different plasma lipoproteins still await evaluation. The fine control of cholesterol levels is probably due to variations in hepatic cholesterol biosynthesis, according to the availability of extrahepatic cholesterol. The mechanism of control is unknown, though it appears that hepatic cholesterol synthesis depends upon available carbohydrate and is thus inhibited during starvation. Boyd and Oliver state that the relationship between hepatic glycogen and control of blood glucose levels leads to speculation on the ultimate control of hepatic cholesterol biosynthesis originating at the hypothalamic level.

I. Rannie has studied experimentally produced cholesterol atherosclerosis. Part of the problem concerns the foam cells or lipophages which appear in the intima of the blood vessels and which appear to be the focal points of cholesterol deposits. Modern thought tends to regard these cells as part of the reticulo-endothelial system, though the way in which they enter the intima from the circulating blood is not yet agreed upon. However, these findings are based largely on experiments in the rabbit, an animal which does not metabolize cholesterol. In the guinea-pig, which does metabolize cholesterol, the same thing is not found, so that other factors are at play in atheroma formation in addition to the passive part of the lipophage cells. It is known that foreign substances can penetrate the vessel wall, and examination of the experimental rabbits revealed the lipophage cells penetrating the intima. Atheroma at the site of increased blood flow may be explained on the increased concentrations of available lipophage cells adhering to the intima and then penetrating it. The confinement of atheroma to the larger arteries may be due to delay in the clearance of the foreign cell through the thick elastic wall. The action of heparin is difficult to interpret, though atheroma in the rabbit may be reduced owing to alteration in the distribution of the cholesterol accumulation. Rannie reminds us that the

important lesions of atheroma in man are those which cause narrowing of the vessel, slowing of the circulation, and a predisposition to thrombosis. The last phenomenon is not found in the atheroma induced in experimental animals. There thus remain other unknown factors governing the intravascular clotting of the blood quite apart from the intimal storage of inert cholesterol and the breakdown of endothelium.

The work of H. W. Fullerton, in investigating the relationship of lipemia to thrombosis and atheroma, has already received comment in this journal.<sup>1</sup> He suggests that atherosclerosis is common in conditions in which hyperlipemia occurs; also it is known that a lipid factor is necessary for normal blood coagulation. The effect of a high fat meal on the whole blood clotting time was studied in normal male volunteers. Out of 11 subjects gross macroscopic lipemia occurred in nine and was accompanied by a significant fall in the clotting time. Reference to national nutritional standards reveals a rough correlation between average fat intake and the incidence of coronary disease. However, this does not explain individual variations, such as are found, and also the effects of sex hormones and exercise and the predisposition to fibrin formation at the sites of intermittent blood flow, such as in the left coronary artery. Much work remains to be done on the role of different fatty acids and their sources, such as hydrogenated and saturated fatty acids and those of animal and vegetable origin.

#### FLOOD.

In recent years the eastern States of this country have experienced prolonged and repeated heavy falls of rain both in flat regions with little natural seepage or drainage and on natural watersheds, where the high accumulation of water has sent enormous quantities down the alluvial fertile valleys of the natural drainage system. From geological evidence it is apparent that the present cycle of events is no new phenomenon, and particular weather conditions in particular areas will continue to result in the flooding of certain occupied and cultivated lands at unpredictable intervals. Within very recent years floods, disastrous to man, have occurred in the United Kingdom, the United States of America, northern and central Europe and in several parts of Asia. In each case the rising and standing waters have created particular problems of preventive medicine and of the public health. It is of some considerable interest to consider the way in which the problem is tackled abroad. Such an account has been given by A. Witkow<sup>2</sup> writing on the public health aspects of the 1955 American New England flood. In the late summer the tail end of a dying hurricane peevishly delivered 12 inches of rain in two days on much of New England, New York and Pennsylvania. Much of the damage occurred after the rain, when the saturated ground and spilling sewers, rivers, reservoirs and dams sent flooding waters to wash away buildings and public utilities and to inundate low-lying areas. When the drinking water supplies were adversely affected, 40-quart milk cans and milk-tank trucks were used to provide water, and recommendations were made that local water should be boiled before use. In view of the long period after the injections before immunization becomes complete and of the short incubation period of the disease, it was considered that typhoid inoculations were of no value. Despite the presence of typhoid carriers in the area, the risk of infection in view of the great dilution of water was considered to be slight. The greatest public health problem was that of submerged food. All food not in glass or metal containers was reduced to a conglomerate mass, and the disposal of this waste was far in excess of the capabilities of the ordinary refuse authorities. All suspected food was placed under quarantine. Canned and hermetically sealed foods were considered to be salvageable. The rest was dumped gradually at the sludge-dump area of the sewage-treatment

<sup>1</sup> M. J. AUSTRALIA, June 16, 1956.

<sup>2</sup> New England J. Med., May 3, 1956.

plant, and the material was "bulldozed" and covered daily. Salvagable food containers were washed, treated with chlorine, rinsed, dried, and relabelled under supervision. Milk supply was little affected by the flood. All alcoholic beverages were dumped and destroyed by the bulldozer under the supervision of inventory checking for reclaimant and tax purposes; none was salvaged. Temporary accommodation was provided and gangs were organized to clean up the drowned and decaying domestic animals and filth; the stink was considerable. Flies of the green bottle or blow variety appeared in great numbers and were controlled by fly flakes. No restrictions were placed on the sale or use of previously submerged clothing, as it was not considered that such articles presented any potential hazard. Mattresses and paper supplies were not salvagable.

In discussing the objectives of a health department during disasters of this kind, Witkow suggests that use of food with a slight chance of having been contaminated depends largely on the availability of an alternative supply. "Standards must always be considered in relation to the circumstances." When the water had subsided food stores were allowed to open before the basements had been cleaned out, despite the malodour, which in normal circumstances would cause concern regarding the sanitation. Rumours of epidemics and of dangers from submerged articles spread rapidly, and precise reassurance and instructions were disseminated by radio and newspapers. While much of the warehouse food and drink in sealed containers, which was subsequently destroyed, was probably quite wholesome, it was considered that, as a general principle, destruction was the safest course, though much material in private hands was consumed after the precautions previously mentioned had been taken. Witkow suggests that health departments, in planning for future disasters, should have teams of personnel trained for such eventualities, and that a reservoir of emergency funds should be available to permit immediate operation without the inevitable delays of red tape. "In preparation for the unforeseen, flexibility should be a key objective. The unforeseen cannot be adequately predicted."

#### MAGNESIUM DEFICIENCY IN MAN.

THE greater part of the magnesium in man is contained in the skeleton, but many cell enzymes require magnesium for their activity, so the cellular content is important. Magnesium deficiency in experimental animals was produced and studied in the early years of this century, but it was first described as an important disease in cattle and horses by Sjollem<sup>1</sup> in Holland in the condition called "gross staggers" which sometimes occurs when cattle graze in new, rapidly growing pastures. The syndrome includes nervousness, restlessness, lack of appetite, muscle twitching, unsteady gait and a wild look. Administration of magnesium salts cures the condition if it is not too far advanced.

Magnesium deficiency in man has seldom been described. Many cases of low serum magnesium content have been described without any characteristic symptoms. E. B. Flink<sup>2</sup> claims that clinical symptoms relating to magnesium deficiency occur frequently and that treatment with magnesium salts is beneficial in some instances, and he lists 163 patients. Many patients have no symptoms or detectable signs even when serum magnesium concentration is very low. The mean normal value for serum magnesium found by the author is  $1.91 \pm 0.2$  milliequivalents per litre by one method and  $2.27 \pm 0.26$  by another method. In a patient recovering from severe hypopotassemic alkalosis there developed tremor, severe athetoid and choreiform movements, delirium and convulsions. The serum magnesium content was 1.19 milliequivalents per litre. The symptoms cleared in twenty-four hours after the administration of 4.0 grammes of magnesium sulphate. Similar

symptoms and results have been found in 160 or more other patients, including 75 with chronic alcoholism and 43 suffering from *delirium tremens*. The magnesium sulphate was administered intramuscularly in a 50% solution, and the amount given depended on the severity of the symptoms and the disappearance of the symptoms, but it was usually 8.0 to 10.0 grammes, administered in four or five divided doses on the first day, and 4.0 grammes in four doses on subsequent days for three to five days. The symptoms associated with severe *delirium tremens* cleared up more rapidly with magnesium sulphate than in the control cases.

Chronic alcoholism appears to be an important cause of the magnesium deficiency syndrome. Prolonged parenteral administration of magnesium-free fluids also results in a magnesium deficiency syndrome in some patients. Hepatic cirrhosis is often associated with the syndrome.

#### RESERPINE AND RENAL FUNCTION.

PREPARED from *Rauwolfia serpentina*, the alkaloid reserpine has been used successfully in the treatment of arterial hypertension and of certain mental disorders. Animal experiments have led to the conclusion that reserpine has no important effects in disturbing renal function, though there may be a fall in creatinine and para-aminohippuric acid clearance. After the administration of reserpine to man by the intravenous route, some variable changes in the inulin and para-aminohippuric acid clearances have been reported, though these changes may have been related to the resulting fall in the blood pressure. The sodium and chloride excretion rates have varied after the administration of reserpine; usually the rate has fallen and has been associated with a decrease in urinary output. Other workers have found that the giving of reserpine by mouth results in a decrease of the renal plasma flow.

A. R. Krogsgaard<sup>1</sup> has further investigated the effect of reserpine on the blood pressure and upon renal function and sodium excretion. The investigations were carried out on six patients, each of whom was suffering from essential hypertension. In each, the endogenous creatinine clearance, the para-aminohippuric acid clearance, and the sodium excretion were determined. Reserpine was injected by the intravenous route in doses of from 0.025 to 0.050 milligramme per kilogram of body weight, and the renal function tests were repeated several times when the drug was exerting its clinical effects. The patients' intake of fluid was not restricted and urine was obtained by catheterization of the bladder; blood pressure and pulse rates were recorded throughout. In each patient the blood pressure was lowered in from ten to sixty minutes, though the maximum hypotensive effect occurred only after several hours and was accompanied by peripheral vasodilatation and psychic changes. From the results of the investigation, it appeared that the clearance of para-aminohippuric acid usually fell, though only slightly, and this was paralleled by the rate of creatinine clearance. These effects indicated no great change in the glomerular filtration rate and the renal plasma flow due to reserpine. In each case there was a decrease in the output of urine, coincident and proportional to the rate of fall in the blood pressure. Sodium excretion was reduced, usually considerably reduced, and this factor also appeared to be coincident with the fall in blood pressure. Whether this fall in sodium excretion was due to the decrease in the glomerular filtration rate or whether there was an increased tubular reabsorption of sodium is not clear. However, Krogsgaard favours the former view, except when the lowering of the blood pressure is profound. From these results it would appear that the effect of reserpine on kidney function—the output of urine and sodium excretion—is not due to a specific effect of the drug itself, but is part of the general response to the lowering of the arterial blood pressure.

<sup>1</sup> *Biochem. Ztschr.*, 1933, 258.

<sup>2</sup> *J.A.M.A.*, April 21, 1956.

<sup>1</sup> *Acta Med. Scandinav.*, 154:1, 1956.



## Abstracts from Medical Literature.

### SURGERY.

#### Hypotensive Anaesthesia in Surgery.

A. MCINDOE (*Plast. & Reconstruct. Surg.*, January, 1956) suggests that 50% of a surgeon's time and a great deal of his nervous energy are devoted to the control of bleeding. The rest are concerned with the real object of the operation. Most of the post-operative anxieties are due to reactionary hemorrhage or to the problems arising from the damage done by the surgeon's efforts to control bleeding during the operation. The bruising effect of repeated swabbings upon the tissues, the crushing effect of clamps and the multiple points of possible sepsis and certain fibrosis caused by dozens of ligatures all make the difference between a first-class and a mediocre result. Ideally an operation should require the minimum amount of dabbing and scrubbing with such material as gauze pads; it should require the minimum use of "that insidious blood thief" the suction apparatus; it should present a nearly dry venous field and require the fewest possible ligatures to control arterial bleeding; and finally it should leave free within these tissues during the post-operative course, the smallest amount of blood either as a direct result of the operation or in the form of secondary hemorrhage. The author presents his experience with over 4,500 patients operated on at the Queen Victoria Hospital, East Grinstead, during four years. Six surgeons and four anaesthetists were concerned in this experience in which both chemical and postural hypotensive anaesthesia was used. The ganglioplegic drugs including "Arfonad" are discussed, but the report is concerned largely with a newer drug, pentolinium tartrate ("Ansolsen"). It is said to have the following advantages over others: (i) there is less tachycardia and therefore blood pressure control is easier; (ii) there is a slow initial fall in the blood pressure, but the extent and duration of this fall are more prolonged than with other agents; and (iii) there is a greater sensitivity to the posture of the patient and to other hypotensive factors. With this technique, the experienced anaesthetist can now accurately control the blood pressure for the duration of the average operation, which lasts for one to one and a half hours in most patients. Control is easy for the first half hour and thereafter becomes increasingly difficult unless extreme care has been exercised throughout. During the period under review, and in 4,500 patients dealt with by the hypotensive technique, there have been five deaths attributable to the anaesthetic. During the same period, and in 5,000 patients given the same kind of general anaesthetic, but without hypotension, there were two deaths. Contra-indications are enumerated. The method has not been used in a patient below the age of twelve years, although the author sees no reason why, in selected cases and for short periods, hypotension should

not be used in children if it is thought to be advantageous. From the surgeon's point of view, the opportunities offered by a bloodless field are so great as to constitute a major surgical advance. Practically all major operations on the head and neck are now conducted under this technique. Surgery of the hand is a particular indication for hypotensive anaesthesia. The author is intensely enthusiastic about its use in plastic and reconstructive surgery.

#### Evaluation of Cholecystostomy.

B. B. CLARK AND W. T. LIVINGSTON (*Arch. Surg.*, February, 1956) consider cholecystostomy to be a valuable procedure. The authors were intrigued by the conflicting and divergent views concerning the post-operative management of these patients. The two views are on the one hand that all cholecystostomies, where possible, should be followed by a cholecystectomy; and on the other by the opinion that 70% of cholecystostomy patients will remain symptom-free and require no further surgery. The authors did a follow-up study on 22 patients for whom a cholecystostomy had been performed. The figures obtained in the study were surprising to the authors. Approximately 60% to 65% of patients who had undergone a cholecystostomy for acute gall-bladder disease remained symptom-free. Of patients who had undergone cholecystostomy for chronic gall-bladder disease, 45% remained symptom-free for a while. However, as time passed more and more of these patients had evidence of a gall-bladder disease. It would seem that cholecystostomy alone is not the poor procedure in acute cholecystitis that some authors indicate. It cannot be considered a good elective procedure, however, if 35% of patients develop recurrence of symptoms and gall-bladder disease necessitating further surgery. Cholecystostomy is definitely a poor procedure in chronic cholecystitis. So cholecystectomy should be performed where possible, and cholecystostomy for acute cholecystitis would seem to be indicated only in those patients who subsequently develop gall-bladder disease. The patient may fall into the 65% group that remains free of symptoms and presumably also of disease.

#### Shunt Operation in Portal Hypertension.

H. C. LAN, C. W. YAO AND C. E. CHEN (*Chinese M.J.*, March-April, 1956) analysed the use of the shunting operation in 47 cases of portal hypertension. All but one case was of the intrahepatic type. Most of the patients had cirrhosis of the liver and in almost half the cases the presence of schistosomiasis was proved by means of liver biopsy, rectal biopsy or the culture of stools. Thirty-one patients presented with a history of hematemesis, and barium meal examination revealed oesophageal varicosities to be present in 25 patients. In most of the patients there was considerable splenomegaly. In general, hypersplenism was proportional to the degree of splenomegaly. Most of the operations were of the spleno-renal type, though seven were of the porto-caval type and

in one case a shunt was performed between the left renal vein and the tributary of the gastroepiploic vein. The average drop of portal pressure after splenectomy was nine centimetres of water; there was a further average drop of portal pressure of nine centimetres of water after venous anastomosis. In porto-caval anastomosis the average drop of portal pressure in six cases was 16 centimetres of water. The usual causes of death after operation were impaired function of the liver, poor general condition of the patient and shock from the operation. In this particular series only one death occurred, that being of the single patient with the intrahepatic type of portal hypertension. The results of the follow-up examination of 32 of the patients revealed that recurrence of bleeding had not developed in any case. Both oesophageal varicosities and liver function improved in the spleno-renal series, but four out of the seven patients on whom a porto-caval shunt was performed developed hepatic coma or its prodromal stage. The authors consider that the hepatic coma was probably due to the fact that too much stress was laid upon a protein-rich diet. All the patients in whom hepatic coma developed recovered after appropriate treatment with temporary stoppage or reduction in the protein intake, and the authors believe that post-operative coma can be prevented if a diet too rich in proteins is avoided. The authors conclude that the main factor in the production of ascites is probably one of defective nutrition, and they believe that ascites complicating portal hypertension is not an indication for the performance of a shunting operation.

#### Treatment of Plantar Warts.

C. W. MONROE (*Plast. & Reconstruct. Surg.*, February, 1956) presents the results of a study which embraces patients who have had warts for years, and who have received treatment on the basis of popular or local superstition or by suggestion. Seventy-two patients with plantar warts are presented and the treatment carried out was as follows: (i) If the warts were small and caused no symptoms, they were not treated. Five or six patients in this group lost the wart spontaneously within six months. (ii) Larger or symptomatic warts were anaesthetized with local anaesthetic and were treated by high frequency fulguration. This group included 61 patients. The treatment was effective in 85% of patients twenty years of age or younger, and in 64% of patients twenty-one years of age and older. (iii) When fulguration had been ineffective or when the patient already had marked changes from previous treatment, warts were subjected to surgery. Of 10 patients an excellent result was achieved in five, and three were improved, but not completely well. The author considers that the variation of human resistance to the wart virus in the same individual at different times makes it exceedingly difficult to assess the value of any particular treatment. It seems most likely, however, that the clearing of warts encountered in the group of cases following high-frequency fulguration either resulted from a non-



specific stimulation of the body to repair or was the result of the opening up of a limited area to mild bacterial invasion which, directly or indirectly, adversely affected the wart virus. A mode of therapy for warts which, at least theoretically, offers a chance of improving the patient's own resistance to the disease seems a logical first choice of treatment. High-frequency fulguration seems to offer this in an accurately controlled way with a minimum of damage to normal tissue. Generous surgical excision of plantar warts or their complications has produced the desired painless foot in only 50% of patients. The late changes which follow X-ray therapy for warts, even when it is used with some caution, makes it unjustifiable as a treatment for this benign lesion in most instances.

### Peripheral Artery Replacement with Nylon Tubes.

W. EDWARDS and J. TAPP (*Surg., Gynec. & Obst.*, April, 1956) have developed flexible braided nylon tubes, treated with acid, which are easily handled and sutured. They are flexible to 180° without obstruction, and so can be used in flexion areas (groin, axilla and popliteal space) or as a by-pass graft. These tubes can be made in various sizes and are easily autoclaved. The incidence of thrombosis in these is low, and there is little blood loss through them after implantation. Ten cases of popliteal vessel replacement with crimped tubes are reported, with success in nine.

### The Significance of the Dumping Syndrome.

J. M. WALKER, K. ROBERTS, A. MEDWID and H. T. RANDALL (*Arch. Surg.*, October, 1955) state that the post-gastrectomy or dumping syndrome is a common and severe complication after total gastrectomy and occurs not infrequently after partial gastrectomy. The syndrome consists of a feeling of fullness, churning and discomfort in the epigastrium, occurring shortly after eating a meal or drinking a hypertonic solution. This is then succeeded by nausea, weakness, sweating, pallor and tachycardia. These symptoms last from sixty to ninety minutes and are followed by gradual improvement and a feeling of well-being until the next meal. The major response in this syndrome is sympathetic in nature, but how this response occurs has not been demonstrated. Many theories have been advanced to explain it. The authors were members of a group who decided to investigate and study this syndrome. This they did, and chemical, mechanical and metabolic studies were performed. These consisted of preparation of serial electrocardiograms, determination of plasma values, haematocrit values and blood pressure measurements, and potassium chloride, glucose, phosphate and bicarbonate determinations. In some renal function studies electrolyte excretion measurements and eosinophile cell counts were calculated. In others, balloon distension studies of the jejunum were carried out. Basic studies were performed on patients with intact stomachs as controls. The authors' conclusion is

that the dumping syndrome is caused by a rapid shift of circulating fluid from the bloodstream into the small intestine. There occurs a shock-like state due to the rapid loss of extracellular fluid. The dumping syndrome can be reduced by careful dieting and frequent meals. A diet of high protein and low carbohydrate content is of value in controlling it.

### Anterior Sacral Meningocele.

B. C. ROWLANDS (*Brit. J. Surg.*, November, 1955) reports two instances of anterior sacral meningocele. This rare anomaly has been recorded in only 53 cases. The cyst lies deeply in the pelvis, the lesion may be asymptomatic, and the discovery may be accidental. Symptoms, however, may be caused by pressure of the sac on the anterior sacral rami, the bladder or the rectum. Characteristic radiological evidence of the anterior defect in the sacrum usually confirms the diagnosis. A high mortality rate accompanies any radical or palliative operative procedure, with meningitis developing as a complication. In the absence of pressure symptoms or of pregnancy there appears to be no indication for treatment. When there is evidence of pressure, simple aspiration may produce benefit.

### An Arterial Reservoir for Intracardiac Surgery.

H. E. WARDEN *et alii* (*J. Thoracic Surg.*, December, 1955) describe an uncomplicated method that provides an adequate circulation of oxygenated blood to the vital organs during the period of cardiac by-pass in patients undergoing operations within the open chambers of the heart. This is accomplished by a simple pump which simultaneously delivers blood from an arterial reservoir to the arterial system of the patient and withdraws an equal volume of venous blood from the great veins. A simple method is discussed of obtaining blood possessing the characteristics of arterial blood, with which to supply the reservoir. This is done by utilizing the observation that blood drawn from a vein of an extremity which has been subjected to an external heat of 45° to 47° C. for fifteen to twenty minutes has these characteristics. Thus, by preheating the arms of blood-bank donors, relatively large quantities of "arterialized" venous blood can be collected with ease. The feasibility of the application of this method, especially to small patients, is discussed.

### Russian Surgery.

F. H. ELLIS (*Arch. Surg.*, February, 1956) recently visited Russia, and while he points out that his tour was a limited one, encompassing as it did major medical centres in two of Russia's major cities, the report he makes is of great interest. He was struck by the candour and honesty of the Russian physicians whom he met, although total freedom of movement was by no means available. The report covers, in general, the hospital system in Russia, the medical education for undergraduate students, and the surgical training of the post-graduate. He gives an adequate picture of hospital facilities and tries to make comparative

studies of surgical procedures. He found that oesophageal surgery was well advanced as a result primarily of the work of Yudin, but cardio-vascular surgery did not appear to have reached the stage of development that it has in the United States of America. The author was impressed by the kindness and humanity exhibited by Russian surgeons toward their patients. Although the Russian physician is responsible to the State, the physician-patient relationship seemed to be salutary. The wide use of local anaesthesia by Russian surgeons is well known, and to explain this the author offers three facts. Local anaesthesia has always been used more freely on the Continent than in America; well trained anaesthetists are not numerous in Russia; and the character of the Russian person is, to some extent, responsible. The Russian appears to be stoical and accustomed to suffering, and can tolerate physical stresses which patients in America could not withstand.

### Pneumoperitoneum for Giant Hernia.

E. MASON (*Surgery*, January, 1956) points out that the pre-operative use of pneumoperitoneum followed if necessary by a staged repair has made the term "inoperable" when applied to giant hernia obsolete. This use of pneumoperitoneum reestablishes the abdominal domain and makes room for the herniated viscera in the abdominal cavity. However, the author agrees that the ability to repair a hernia without tension or without a splint, such as tantalum gauze, does not guarantee that the repair will remain intact if the fascial structures are inadequate, or if obesity, chronic cough or other adverse factors persist or recur.

### Plastic Fabrics as Arterial Prostheses.

E. J. POTR, J. K. JOHNSON and J. H. CHILDES (*Ann. Surg.*, October, 1955) state that the accumulated experience of a number of investigators indicates that prostheses made of inert plastic fabrics are immediately suitable for arterial replacements and are likely to be superior to arterial homografts. The entire tissues of a homograft are eventually absorbed, and it has been shown that a lyophilized graft, which is neither viable nor inert, is immediately more satisfactory than a fresh homograft as regards the incidence of early post-operative thrombosis. An inert substance which can be fashioned to given dimensions and which will serve equally well the function of a temporary blood conduit, even though it will be no better eventually, would be the material of choice. There is every reason to believe that the inert prosthesis will prove to be the better permanent replacement. The materials are readily available and inexpensive. The implants can be tailored to fit the vessels of the host. Nylon is the best of the materials studied, and nylon prostheses with multiple thickness walls are as well tolerated as a single thickness of fabric, and assure a greater factor of safety. The immediate results are good, but the ultimate value must depend on the long-term clinical evaluation.

## British Medical Association News.

### SCIENTIFIC.

A MEETING of the New South Wales Branch of the British Medical Association was held at the Royal North Shore Hospital of Sydney, St. Leonards, on April 19, 1956. The meeting took the form of a series of clinical demonstrations by members of the honorary medical and surgical staffs of the hospital.

#### Neurology and Neurosurgery.

DR. J. M. F. GRANT, DR. G. SMLEY and DR. E. L. DAVIS showed a number of patients with neurological and neurosurgical conditions.

##### *Benign Intracranial Hypertension.*

The patient was a boy, aged ten years, who had been admitted to hospital with a history of moderately severe frontal headache present for three weeks, and diplopia upon looking to the right present for ten days. On examination of the patient, the only abnormal physical findings were gross papilloedema, paralysis of the right abducent nerve and an upper motor neuron paralysis of the left facial nerve. The right kidney was palpable. X-ray examination of the skull revealed an increase in the convolutional markings of the skull and some diastasis of the coronal and sagittal sutures. X-ray examination of the chest and excretion pyelography revealed no abnormality. The visual fields were within normal limits, and the electroencephalogram showed a slower record than normal for the patient's age group.

Two days after the patient's admission to hospital bilateral occipital burr holes were made and the brain was seen to be grossly oedematous. Ventriculography was then performed and revealed small ventricles. Bilateral subtemporal decompression was then performed. Also at operation, needling of the cerebellum failed to reveal any fluid.

After operation the patient remained in coma until the eighth day, when he suddenly regained consciousness. He then made a rapid recovery; the papilloedema decreased, the diplopia became less pronounced and the facial paresis disappeared. On the sixth day after operation lumbar puncture revealed clear cerebro-spinal fluid at a pressure of 200 millimetres of cerebro-spinal fluid. On the seventh day, after operation the pressure of the cerebro-spinal fluid was 110 millimetres, and prior to the patient's discharge from hospital it was 90 millimetres. Laboratory examination of the fluid revealed no abnormality. After operation the patient was treated with "Dilantin" and phenobarbitone. He was discharged from hospital three weeks after operation.

##### *Bilateral Carpal Tunnel Syndrome.*

The patient was a woman, aged seventy-five years, who had been admitted to hospital with a two years' history of severe pain in both hands, worse at night, of paresthesia in the fingers and of progressive weakness of the hands. The symptoms were more pronounced in the left hand than in the right. On examination of the patient pronounced wasting of the thenar eminence of the left side was found, with slight wasting on the right side. There was diminished sensation over the radial three fingers of both hands, and pressure over the carpal tunnel caused pain and paresthesia in the hands. A soft, tender swelling two centimetres in diameter was present on the ulnar aspect of the left wrist. X-ray examination of the cervical part of the spine and the wrists revealed osteoarthritic changes.

At operation both flexor carpal retinacula were divided. The left median nerve was diffusely swollen to a diameter of 1.25 centimetres for three centimetres above the retinaculum. The right median nerve was swollen to 0.75 centimetre in diameter. After the operation the patient experienced no pain or paresthesia in the hands, and she was discharged from hospital on the fifth day.

##### *Myasthenia Gravis.*

The patient was a woman, aged thirty-seven years. For three months prior to her admission to hospital she had suffered from *myasthenia gravis* and had been receiving six tablets of "Prostigmin" (15 milligramme tablets) per day, which controlled her weakness. Two days prior to her admission to hospital she suddenly became extremely weak, she could not stand, her voice was inaudible. She could not swallow and she had great difficulty in breathing

adequately. She also had frequency of micturition during these two days.

On examination of the patient, her general musculature was extremely weak, her voice was inaudible and her eyelids were drooping. The tendon reflexes could not be elicited and her body temperature was 99° F. Microscopic examination and attempted culture of the urine revealed no infection.

The patient was immediately given "Prostigmin", 15 milligrammes every two hours, ephedrine 0.25 grain and potassium chloride one gramme three times per day by mouth. Her motor power then increased gradually up till the third day, when she could walk slowly, her speech and swallowing being normal. Her vital capacity was measured at this stage and was 1850 cubic centimetres. The "Prostigmin" was then replaced by "Mestinon", 60 milligrammes being given every two hours. After two days her condition returned to normal, and she experienced only mild and infrequent colic with the "Mestinon". Her vital capacity rose to 2200 cubic centimetres. Pelvic examination revealed no evidence of uterine or ovarian newgrowth. The comment was made that now that the patient had been stabilized on "Mestinon" it was intended to perform a thymectomy on her.

##### *Arterio-Venous Fistula of the Right Carotid Artery.*

The patient was a man, aged thirty-five years. Two days prior to his admission to hospital he had been playing cricket when he was struck on the right side of the neck by the head of a fellow player. His vision became blurred for about four minutes, and he noticed an aching pain behind the right eye. That evening the patient became giddy and noticed a hissing noise in the right ear which coincided with the heart beat. Those symptoms then continued. The only relevant past history was that of meningitis in 1940.

On examination of the patient, a soft tissue swelling was found around the right eye and the conjunctiva was injected. Slight ptosis of the right upper lid was seen. A soft systolic bruit was audible over the right eye, and a convergence weakness of the eyes was noted. Both carotid pulsations were equal and synchronous and the blood pressure was 155 millimetres of mercury, systolic, and 90 millimetres, diastolic. Lumbar puncture produced clear cerebro-spinal fluid with a protein content of 100 milligrammes per 100 millilitres. The fluid was otherwise normal. X-ray examination of the skull and the chest revealed no abnormality. Right carotid arteriography was attempted on two occasions, but dye failed to enter the internal carotid artery. The patient was treated symptomatically and discharged from hospital twelve days after his admission, still with the signs present on his admission.

##### *Mitral Incompetence.*

DR. D. S. STUCKEY and DR. R. G. EFFS showed a married woman, aged forty-five years, who had a long history of rheumatic heart disease and had virtually required almost continual hospital treatment over the preceding three years because of intractable congestive cardiac failure. The physical signs included a mixed mitral valve lesion, stenosis and incompetence, aneurysmal dilatation of the left auricle, functional tricuspid incompetence and cardiac cirrhosis.

Empirically it was decided to ligate her inferior vena cava, and this was done on November 2, 1955. After a somewhat stormy convalescence the patient maintained a steady improvement, and at the time of the meeting she could do light duties without much difficulty. She was also far more responsive to routine medical measures, although the physical signs, if somewhat ameliorated, were essentially the same.

##### *Rheumatoid Arthritis.*

DR. P. BENJAMIN showed a married woman, aged forty years, whose illness had begun in December, 1953, when she developed a sore throat, which was followed two weeks later by pain and swelling of the joints, mainly the feet, hands and knees. She had an elevated temperature and sweating and was forced to stay in bed for two months. The condition of her joints did not settle down completely, and in April, 1954, her tonsils were removed. After this she still had trouble with her joints, and she reported to the arthritis clinic on August 17, 1954, complaining of pain and stiffness in the hands and feet. On examination of the patient at this stage, swelling and periarticular tenderness of the small joints of both hands were found, particularly the metacarpophalangeal joints, and also pronounced stiffness with partial subluxation of the metatarso-phalangeal joints of both feet. A blood count gave the following information: the erythrocytes numbered 3,800,000 per cubic millimetre, the leucocytes numbered 6700 per cubic millimetre, the erythrocyte sedi-

mentation rate was 10 millimetres in one hour (micro method) and the haemoglobin value was 11 grammes per centum. The patient was treated with "Proseptasine", 0.5 gramme three times a day, ferrous sulphate, five grains three times a day, and "Amino B Compound", two tablets three times a day, and was also given feet exercises. On September 14, 1954, she had an attack of mumps, which seemed to cause a flare-up of the condition, and the metacarpo-phalangeal joints of the second and third fingers of her right hand became thickened and greatly swollen. On October 26 her erythrocyte sedimentation rate was five millimetres in one hour (micro method). By December, four months after reporting for treatment, she was very much better. The comment was made that the patient had been maintained on the same treatment for eighteen months and the joints were in generally good condition.

Dr. Benjamin's second patient suffering from rheumatoid arthritis was a married woman, aged sixty-seven years, who had first reported to the clinic on October 11, 1955, complaining of "arthritis" present intermittently for sixteen years. It had started gradually in her hands and had then affected her knees and shoulders. During the last eighteen months her condition had become much worse, and over the last month she had been very crippled and ill and could move about only with great difficulty. Apart from her present illness she had had no illnesses or operations, and there was no relevant disease in her family history. She had had no injections, but occasional courses of "Butazolidin" had given her some relief.

On examination, the patient was a very sick-looking and pale old woman with obvious disability and pain. Inspection of her hands revealed ulnar deviation with periarticular thickening and tenderness of the proximal interphalangeal and metacarpo-phalangeal joints of the hands, and large, puffy, synovial swellings of the wrists. The knees and ankles were both enlarged and tender, and cystic swelling was present behind both knees. The small joints of the foot were tender and stiff. Abduction of the shoulder joints was limited to less than 90°. A blood count gave the following information: the erythrocytes numbered 3,450,000 per cubic millimetre; the leucocytes numbered 11,100 per cubic millimetre, 80% being neutrophilic cells, 1% eosinophilic cells, 15% lymphocytes and 4% monocytes. The haemoglobin value was 8.6 grammes per centum. The erythrocyte sedimentation rate was 20 millimetres in one hour (micro method). X-ray examination revealed osteoporosis and cartilage destruction in the hands, and in the knees osteoporosis only. The patient was treated with "Sulphadimidine", 0.5 gramme three times a day, ferrous sulphate, 10 grains three times a day, "Amino B Compound", two tablets three times a day, and "Campolon", five cubic centimetres per week. She had slowly but definitely improved. The swelling of her knees had gone down and she was able to do her own washing.

A third patient suffering from rheumatoid arthritis shown by Dr. Benjamin was a man, aged fifty-one years, who had quiescent tuberculosis. He had begun to complain of pain and aching in the hands and feet in July, 1955, when he reported to the resident medical officer and was regarded as suffering from rheumatoid or infective arthritis. Blood tests were carried out with the following results: the erythrocyte sedimentation rate was seven milligrammes in one hour (micro method); the haemoglobin value was 14.7 grammes per centum; the leucocytes numbered 5500 per cubic millimetre, 68% being neutrophilic cells and 28% lymphocytes. At this stage he was treated with "Butazolidin", 100 milligrammes three times a day. His condition improved somewhat, but he still had considerable aching in the fingers and wrists which kept him awake at night. He was referred to the arthritis clinic in December, 1955. On examination of the patient, his hands were found to be affected by severe periarticular swelling and tenderness on the proximal interphalangeal joints and slight swelling of the wrists. He was given "Sulphadimidine", 0.5 gramme three times a day, and treatment with "Myocrisin", 0.01 gramme in the first week followed by 0.02 and then 0.05 gramme per week, was begun. On January 12, 1956, several infected teeth were extracted. The same treatment was continued and the patient showed steady improvement. On January 3, "Sulphadimidine" was changed to "M and B 125", in a dosage of 0.5 gramme three times a day.

Dr. J. B. DICK-SMITH showed a married woman, aged forty-one years, suffering from rheumatoid arthritis. She was shown because of the good response of her condition to "Butazolidin" therapy. Control had been achieved, but not remission. The patient had presented in November, 1955, with grade IV rheumatoid arthritis. The onset had been in February, 1955, with flitting joint pains. There was a family history of rheumatic disease on both sides.

Aggravating factors were present. The patient had infection in the form of bronchiectasis; her living conditions were poor, damp and cold. She lived on an oyster lease. She was also subject to nervous strain.

When she was first examined on November 1, 1955, she was obviously very ill, had lost weight and had generalized joint involvement. The erythrocyte sedimentation rate was 20 millimetres in one hour (micro method). Treatment was immediately begun with "Butazolidin" in a dosage of 100 milligrammes three times a day, and the patient showed improvement after five days. After two weeks there was little improvement, and she was given in addition sulphadiazine, 0.5 gramme three times a day. After this she showed considerable improvement, but developed acute sulphonamide light-sensitivity dermatitis. This was cleared up, and since then she had continued with the "Butazolidin" and had been fairly comfortable, with some flare-ups due to acute nervous strain.

Dr. Dick-Smith's second patient was an unmarried woman, aged fifty-nine years, who had suffered from slowly progressive and crippling rheumatoid arthritis since 1952. She had been treated with cortisone prior to reporting to the clinic in September, 1954. In spite of varying treatment, her illness had taken a slowly progressive but fluctuating course until July, 1955, when combined cortisone and "Myocrisin" therapy was resorted to. She obtained immediate improvement, but within a few weeks she developed symptoms of sodium retention, and with reduction of the dosage her rheumatic symptoms recurred. Treatment was changed to "Hydrocortone" and then to "Delta Cortef", each time with the same result. At the time of the meeting she was receiving "Delta Cortef", half a tablet per day, but was having considerable pain. She was helped by "Butazolidin", but it caused indigestion and a rash on the legs with oedema, and its administration was discontinued after several trials. Dr. Dick-Smith said that the patient had been presented to illustrate some of the difficulties which might arise with cortisone. Her latest erythrocyte sedimentation rate was 90 millimetres in one hour and her haemoglobin value was 13.3 grammes per centum.

Dr. Dick-Smith then showed a married woman, aged fifty-one years, who had been referred to the clinic in January, 1955, with a history of rheumatoid arthritis present for six and a half years, which had been controlled until recently by gold therapy. The onset of the disease had been abrupt, and had followed six weeks after tonsillectomy. In 1954 she had had an acute pyrexial respiratory illness treated with sulphonamides, after which she had a temporary remission for six to eight weeks. At the time of the first examination her erythrocyte sedimentation rate was 12 millimetres in one hour.

It was decided to try sulphadiazine therapy, and she obtained approximately the same relief as she had obtained from "Myocrisin". Recently she had obtained more relief by increasing the dose to two grammes per day. She had not had a remission, but had had very appreciable relief of symptoms with that treatment.

### Ankylosing Spondylitis.

Dr. P. BENJAMIN showed a man, aged thirty-seven years, an Italian, who spoke very poor English and had come to Australia three years earlier. It was difficult to investigate his past history; but apart from some trouble with his back in the Italian Army fourteen years earlier, he said that he had had no difficulty until he came to Australia and began heavy work in Tasmania. He worked only intermittently and was always tired with the pain and stiffness in the neck, which were more severe after he had rested, especially in the early morning. Finally his condition was diagnosed at the Royal Hobart Hospital in September, 1955, as ankylosing spondylitis, and he was given a course of deep X-ray therapy, details of which had not yet been obtained. His condition had apparently improved considerably, but he still complained that he had much stiffness and pain and could not work.

On examination of the patient he presented a typical picture of moderately advanced ankylosing spondylitis. He had gross limitation of his spinal movements with typical dorsal kyphosis and flattened lumbar curve, and a very limited chest expansion of one inch only. X-ray examination of the patient revealed the classical changes associated with ankylosing spondylitis, and he was presented for that reason.

Dr. R. ROBINSON also showed a patient suffering from ankylosing spondylitis. This was a man, aged forty years, who had rheumatoid disease of ten years' duration, stage II, class I, with an exacerbation in the two months prior to his admission to hospital. The joints affected were his



right shoulder, his wrists, his fingers, the lumbar part of his spine and his feet. The blood count and the erythrocyte sedimentation rate were normal. X-ray examination revealed only some sclerosis about the sacro-iliac joints and erosion of the cartilage of the lumbar apophyseal joints. Treatment with achromycin produced subjective improvement in one month. In three months the patient reported: "Doing more without noticing it; walked city all day without sitting down; was very active during vacation without ill effect. Last year completed vacation and wanted another—not so this year." One year later he reported: "Did not have ache or pain on this vacation." After two years' treatment, he reported that he "had less trouble in second year than in first—attacks of pain are less severe when they come, less intense and of shorter duration". Objective examination revealed no abnormalities.

#### Ankylosing Spondylitis with Pulmonary Tuberculosis.

Dr. Benjamin showed a man, aged thirty-six years, who in 1942 had been told that he had tuberculosis when he was examined for the army. He remained clinically well until 1953, when he developed dyspnoea on exertion and a cough with sputum. In November, 1954, he was involved in a motor-car accident and suffered a fracture of the skull and of the right scapula. After that tubercle bacilli were found in his sputum. He was admitted to hospital on that account, and complained of pain and stiffness of the back, which became more severe with rest and was relieved with movement. In January, 1956, his back was radiologically examined and blood tests were carried out. The X-ray examination revealed early sclerotic changes in the margins of both sacro-iliac joints. The blood count was as follows: the haemoglobin value was 13.5 grammes per centum and the leucocytes numbered 10,500 per cubic millimetre; the erythrocyte sedimentation rate was 30 millimetres in one hour by the micro method.

On January 31, 1956, treatment was begun with 200 milligrammes of "Butazolidin" per day, and within one week he noticed less pain and an increase in movement. On examination of the patient before that he had had pronounced paravertebral muscular spasm and very restricted spinal movement in all directions. On that dosage he was very much better, and he was being kept on that until it was possible to find out what his chest condition was going to do.

#### Palmar Fibrosis—Sympathetic Hand.

Dr. Benjamin also showed a married woman, aged sixty-seven years, who had first reported at the clinic on October 4, 1955, with the history that six months previously her left hand had suddenly become swollen, stiff and painful. For the last week or so it had become less painful, but it was very stiff and she was unable to do any work with it. There had been no history of previous illness, nor were there any predisposing factors. On examination, the patient was seen to be a pale, elderly woman with a rather thickened-looking skin. Her left hand was slightly reddened, and looked and felt hotter to the touch than the right hand. The fingers were thickened and the skin was hard and would not move over the subcutaneous tissues. Both flexion and extension were limited, and the hand was rather claw-like in the position of mid-flexion. The palmar surface was thickened and tender. The right hand was normal except for two fibrous linear thickenings in the palmar fascia on the thenar side. Her blood pressure was 190 millimetres of mercury, systolic, and 90 millimetres, diastolic, and the only other abnormality was that the left pupil appeared to be slightly smaller than the right. Blood examination gave the following information: the erythrocytes numbered 4,500,000 per cubic millimetre; the leucocytes numbered 6000 per cubic millimetre, 75% being neutrophile cells, 2% basophile cells, 18% lymphocytes and 5% monocytes. The haemoglobin value was 12.5 grammes per centum. The erythrocyte sedimentation rate was 14 millimetres in one hour by the micro method. The basal metabolic rate was +2%. X-ray examination of the cervical portion of the spine and the chest showed appearances within normal limits. Osteoporosis of the left hand was present.

The patient was treated with thyroid, 0.5 grain twice a day, and vitamin B<sub>12</sub>, 600 milligrammes per day. She was also given ultrasonic therapy under water three times a week, and after three weeks reported that the hand felt much better. At that stage physiotherapy was stopped because the patient went away for six weeks. On her return she reported on December 6 that she felt better in every way, and could extend her fingers and straighten out her hand. She was sent away again for six weeks, and when she was again examined she had again improved, but there was still some stiffness, and physiotherapy was again

instituted. On March 13, 1956, she asked whether the physiotherapy could be stopped. She was still unable to flex the fingers fully, but she was very happy with the result.

#### Rheumatoid Disease.

Dr. Robinson's first patient suffering from rheumatoid disease was a man, aged sixty-eight years, who had had a gradual development of rheumatoid disease over ten years. The presenting acute attack had developed eleven months prior to his admission to hospital after a "virus disease complicated by pneumonia". During that interval he had been treated with many of the well-known remedies without benefit. He presented with an extensive papular rash which might have been due to phenylbutazone or to "Myocrisin", both of which he was receiving. Treatment with "Achromycin" caused rapid subsidence of the most acute symptoms. After one year the patient was well, could work hard again, slept well and had some morning stiffness that wore off in about half an hour. The erythrocyte sedimentation rate had fallen from ten millimetres to three millimetres in one hour.

Dr. Robinson's second patient was a married woman, aged thirty-nine years, whose rheumatoid disease had followed an attack of influenza four years previously. Examination of the hands, wrists and foot joints showed typical changes. Large lesions of *keratoderma blennorrhagicum* were present on the soles of the feet and on the palms of the hands. She was classified as being in stage II, class II, and was treated with "Achromycin" and chloroquin. After two months the patient reported that she was well and had no morning stiffness and less swelling, more muscle power and a greater range of movement. The skin lesions had disappeared. Treatment was suspended at six months, when acute chelodrompholyx developed on the hands and feet. In the subsequent six months there had been no major alteration in the remission. The erythrocyte sedimentation rate, which had initially been 20 millimetres in one hour, was at the time of the meeting 10 millimetres in one hour.

Dr. Robinson's next patient was a married woman, aged sixty-four years, whose rheumatoid disease had commenced in 1919 after influenza and pneumonia. Exacerbations had occurred since with recurrent attacks of "bronchitis". The joints affected were the temporo-mandibular and spinal joints, the shoulders, the elbows, the wrists, the joints of the hands and fingers, the knees, the ankles and the joints of the feet. X-ray examination revealed generalized advanced rheumatoid changes, with great bony destruction in some joints. Blood examination gave essentially normal results with the exception of the erythrocyte sedimentation rate, which was 19 millimetres in one hour. Examinations of the sputum for pleuropneumonia-like organisms gave negative results. The patient was classified as being in stage IV, class III. Long-term therapy with "Terramycin" was initiated on the assumption that the fundamental factor was an organismal sensitization. The initial dosage aggravated the symptoms, necessitating a large dosage of salicylates to control the induced increase in antigen-antibody reaction. At first the patient could not tolerate more than five milligrammes per day, but over a period that had been increased to 20 milligrammes per day. When she was examined after four months of treatment, the patient reported that she had had no bronchitis after suffering almost constantly for seven years, and that the joint pains were gradually decreasing. At fifteen months she stated that she was so well that she now complained about twinges.

#### Psoriatic Arthritis.

Dr. Robinson then showed a married woman, aged fifty-two years, with a history of rheumatoid disease preceded by psoriasis. Her history was of twenty years' duration. Those diseases had had their onset during the years of the financial depression, when the patient was working hard to keep the family and was under considerable mental stress. She had had innumerable treatments and a considerable amount of physiotherapy without success. The joints involved were the knees, the feet, the wrists, the hands, the shoulders and the spine. Psoriatic lesions of the skin were present. X-ray examination revealed typical lesions of psoriatic arthritis. Moderately severe anaemia was present. The erythrocyte sedimentation rate was 17 millimetres in one hour. Investigation of the serum proteins gave the following information: the total protein content was 5.8 grammes per centum, the albumin content being 3.1 grammes per centum and the globulin content 2.7 grammes per centum. The electrophoretic pattern indicated increased  $\alpha_2$  and  $\gamma$  globulin. The patient was classified according to Steinbrocker *et alii* as in stage III, class III. Treatment was commenced with chloroquin, 0.2 gramme per day, the dosage being increased

to three times a day in the absence of toxic symptoms. After twelve months of treatment the patient was free from joint pains. Whereas she had formerly taken up to 50 "Anacin" tablets per week, she now took none. The skin lesions had almost disappeared. The erythrocyte sedimentation rate had fallen progressively to seven millimetres in one hour.

(To be continued.)

## Out of the Past.

*In this column will be published from time to time extracts, taken from medical journals, newspapers, official and historical records, diaries and so on, dealing with events connected with the early medical history of Australia.*

J. P. BIGGE, COMMISSIONER, TO D'ARCY  
WENTWORTH.<sup>1</sup>

Sydney, 25 January, 1821.

Sir,

I beg to inform you that I yesterday received a letter from Mr. Redfern in answer to one from me in which I had requested Mr. Redfern to furnish me with the books of the Colonial General Hospital previous to 1818 and informing me that on submitting my letter to you, you denied that you had ever asserted to me that Mr. Redfern had in his possession the books of receipts and expenditure of the Hospital or that the book of which you had spoken to me as being in Mr. Redfern's possession related to that subject. I am not aware that in ascribing to you the book I requested to see I did more than generally state the Hospital Book. I beg therefore now to inform you more distinctly that I require the production of the General Hospital Books previous to the months of 1818, in which are either contained the entries of medicine received and issued or of patients received and discharged. Mr. Redfern in his letter likewise adds that he stated to you that he had found amongst his own books some old memorandum books of the dispensary and hospital practice which he had promised to send.

I now wish to be informed if there are no other Hospital books in your possession or if there were no other books kept in the Hospital than that described by Mr. Henry Cowper to have been carelessly kept and torn in the Dispensary or the memorandum books attended to by Mr. Redfern.

I have the honor, etc.,

JOHN THOMAS BIGGE.

## Correspondence.

### THE USE OF RESERPINE, CHLORPROMAZINE AND ALLIED DRUGS IN MEDICINE AND PSYCHIATRY.

SIR: I am much indebted to Dr. Morgan for his clear exposition of the uses and effects of some of the host of new psychiatrically effective drugs in his article in your issue of June 23. However, I feel that I must disagree with him on one point. He dismisses the dangers of depression and attempted suicide with use of reserpine far too lightly. Although it is true that pathological depression arises most frequently in agitated and mentally unstable hypertensives when it is used for its hypotensive effect, it is misleading to say that the depression is present, unrecognized from the start. I have myself seen several cases who developed severe depression—not, thank goodness, to a suicidal degree—in people who, for the whole of their previous life, had been normally balanced psychologically. I think Dr. Sargent, in an article in the *British Medical Journal* of April 28, 1956, puts the matter in its correct light when he deplores the issuing of reserpine and chlorpromazine to the general practitioner before their side effects were fully and adequately investigated.

The worst point about the depression induced by reserpine is that it comes on only after the drug has been given for months, at a time when the practitioner feels that he can cease worrying about any side effects. It is so very

insidious in its onset that even the patient does not correlate his wretchedness with the drug which has done him so much good before, and perseveres, without at times telling his medical adviser, until a stage of hallucinations or suicidal tendencies is reached.

Yours, etc.,

DAVID C. WALLACE.

"Kooyong",  
Latrobe Terrace,  
Geelong.  
July 2, 1956.

### CHILDHOOD SCHIZOPHRENIA.

SIR: I would like to give emphasis to the comments of Dr. John Adey. Schizophrenia must be considered in terms of its mental and physical symptoms. In your columns in 1950 and 1952, I pointed out the futility of seeking causation in terms of the formal content of a psychosis. Indeed *The Lancet* did me the honour of quotation. The schizophrenias, the affective psychoses and the epilepsies form a well-defined group of disorders unaffected by racial, cultural and geographical barriers.

Once it was thought that the formal content of general paralysis of the insane, with expansive delusions and all the rest of it, gave a clue to this disorder; but it is now known that the most varied clinical picture can coexist with the pathology of general paralysis of the insane.

In Melbourne I used to be badgered about "unnecessary dualism", but this is a practical necessity in understanding and treating mental disorders. The mental content and the underlying pathology must initially be approached from different angles. They may be a philosophical unity ultimately, but this has got nothing to do with a practical approach. For that, space and time, and matter and energy, might be unities, but even the devout rationalist treats them differently, otherwise he would never catch a bus. I have long believed that the endogenous psychoses form a continuum which merge into the epilepsies. In other words, that there is a spectrum of psychotic reactions in which the major entities are like the primary colours. Melancholia may have a schizophrenic component with auditory hallucinations.

In his essay on "Mourning and Melancholia", Freud takes reactive depression as close to psychotic depression as he can, but then falls back on constitutional predisposition. There is a gap which can only be filled by an endogenous factor. Freud may be the Harvey of psychology. His genius lies with the psychopathologies of everyday life. Indeed, the more normal the subject, the more suitable he is for classical analysis, if time and money permit. With the aid of Freud the clinical psychiatrist can fit together the fragmentary formal content of a psychosis. Harvey did not discover the cause of cardiac failure, nor Freud the cause of mental disorders. Freud invaded other fields of everyday life with success.

One of the spearheads of my thesis, that there is a unity in the endogenous factor underlying the major psychoses, is the primacy of auditory hallucinations in these conditions. At a later date this and other points will be developed at length. In the biogenetic psychoses auditory hallucinations are frequent and olfactory not infrequent. Of course, with "spread" in the acute phases, a schizophrenic may be hallucinated in all senses. But visual hallucinations are not common. Yet in hysterical twilight states and toxic confusional psychoses, visual phenomena predominate. They are indeed total disorders.

In man, vision dominates the cerebral cortex. It is the dominant sense. One-tenth of all cells in the cortex are in the striate area. The art of blind flying, on instruments, is a testimony as much as the devastating effect of the cinema and television. This point can be covered from the scientific to the anecdotal.

In the biogenetic psychoses the natural hierarchy of human senses is reversed. The primacy of auditory hallucinations with olfactory close-up can only mean a focal basal brain origin for these disorders. The earlier workers on the electroencephalograph thought that there was a common underlying factor, but they were driven from their opinion by psychiatrists wedded to classifications or to a brand of psychogenesis.

Dr. Adey's summons for a return to descriptive, factual psychiatry is timely, but I fear that it will fall on the deaf ears of the horde of psychiatrists and their camp followers who are now in full cry. They know everything. They compile notes about everything and even invade the privacy of homes. The Welfare State has been a godsend to them.

<sup>1</sup> From the original in the Mitchell Library, Sydney.

Their drawing-room diagnoses and predictions baffle description. In a recent case Lord Justice Goddard described the removal of a fourteen-year-old girl "for observation" as "bureaucracy gone mad". The well-defined disorders are the province of the psychiatrist. If the clergy, the philosophers and psychologists can solve the problems of everyday life for us, we will be among the first to bow and kneel.

Yours, etc.,  
BARRY MULVANY.

London,  
June 29, 1956.

#### CORTISONE.

SIR: On February 5, 1955, I presented a plea in your pages for the allowance of cortisone as a pharmaceutical benefit to the asthmatic cripple. I gave up an intent to press this matter further after a conversation with a member of the Federal Council, who presented to me the aspect of almost certain abuse of this privilege.

Today (June 13) I met the justification of this argument. A farmer of forty-three was referred to me concerning a relapse of his asthma to the degree that he was having fairly frequent attacks of moderate severity, amenable to antispasmodics and causing inconvenience, but little disability. For this condition he had, without reference to his usual attendant, consulted a "specialist" on May 5, who had prescribed cortisone, one tablet, three times a day; which medication he had continued to take ever since, with, of course, relief of his asthma. No ill effects are as yet apparent. This man had previously had remission of seventeen years through desensitization, is otherwise quite healthy, and there could have been no reason to expect that he would not respond again, although maybe not for so long a time. Now that he has had six weeks' cortisone therapy there is cause for some doubt.

I have also seen today a woman who has taken hydrocortisone intermittently for eighteen months without having had any other investigation of her disease beyond clinical assessment. These cases come at a time when I am becoming rather concerned at the increasing number of patients who are being referred with the note "he had a course of cortisone"—not "I had to give him cortisone to save him", but "I gave him cortisone"; and it is my impression that such patients do not respond so well to desensitization or any other treatment as those who have not had steroids: it is certainly true that many people who had relief from cortisone continue to seek it for less and less severe trouble thereafter.

At Rio de Janeiro in November, 1955, Dr. Bram Rose, Professor of Medicine at the Royal Victoria Hospital, Montreal, and first Vice-President of the International Association of Allergology, an expert amongst the experts, prefaced his address on steroid therapy with this statement: "Always remember that once a patient has cortisone, however well he may seem after it, he is worse off than he was before." This sums up world expert opinion, and it applies in that opinion to prednisone and prednisolone (Meta and Delta) equally with cortisone. The reference is, of course, to suprarenal atrophy and the associated undetectable physiological defects and liabilities.

There is a present accent on the latter drugs with their lower dosage and lesser likelihood of salt retention, glycosuria *et cetera*. Publicity, stressing these less likelihoods, passes lightly by the real danger, and the profession is apparently succumbing to propaganda and using these steroids somewhat more freely than they formerly did cortisone, under a false impression of safety. And I think it is proper that the profession should be advised as I have tried to do here. Both the cases above show either ignorance or a regrettable lack of a sense of responsibility.

The indication for adrenal steroid remains as before—*status asthmaticus* dangerous to life (which is a rarity); intractable continuous crippling asthma; and I add a third—disabling and severe asthma in the aged whose expectation of life is short anyway; in other words, the calculated risk.

The story of the over-used antibiotic and the abandonment of the art of medicine for expediency is being repeated with the adrenal steroids. This warning would come better from a general physician than from an allergist. The latter is unfortunately always suspect of pushing his own barrow of desensitization. So I hope some general physician of standing will support me here. The matter is, I am sure, serious.

Yours, etc.,  
CYRIL T. PIPER.

163 North Terrace,  
Adelaide,  
June 22, 1956.

## Royal Australasian College of Surgeons.

### FINAL FELLOWSHIP EXAMINATION.

THE next meeting of the Court of Examiners for the final examination for Fellowship of the Royal Australasian College of Surgeons will be held in Sydney, beginning on Friday, October 19, 1956.

Candidates who desire to present themselves at this examination should apply, on the prescribed form, to the Censor-in-Chief for permission to do so before September 6, 1956. The appropriate forms are available from the Secretary, Royal Australasian College of Surgeons, Spring Street, Melbourne, C.1.

Candidates who have already been approved by the Censor-in-Chief, but who have not yet presented for the examination, may present at this examination, provided they notify the Secretary of their intention to do so by September 6, 1956. It is stressed that entries close on this date, and that late entries cannot be accepted.

The examination fee is £21, plus exchange on cheques drawn on banks outside Melbourne, and must be paid to the Secretary by September 6, 1956.

The examination will be conducted in general surgery and in the special branches of ophthalmology, laryngology, gynaecology and operative obstetrics, orthopaedics, urology, neurosurgery, plastic surgery and thoracic surgery.

At its meeting held on June 23 and 24, 1956, the Council decided that until December 31, 1958, Fellows of other Colleges with which the Royal Australasian College of Surgeons has reciprocity of primary examinations and who obtained their Fellowship prior to January 1, 1950, may, at the discretion of the Council, be permitted to undergo a modified type of final examination. The first temporary modified type of final examination will be held in Sydney in conjunction with the usual final Fellowship examination. The conditions set out above regarding method of application for permission to present, date on which entries close, examination fee *et cetera* apply to the modified type of examination.

### NEW SOUTH WALES MEETING.

A MEETING of the Royal Australasian College of Surgeons will be held at the Stawell Hall, 145 Macquarie Street, Sydney, on July 25, 1956, at 8 p.m. The subject will be "Surgical Reconstruction of the Paralysed Upper Limb", and the speakers will be Dr. H. C. Barry and Dr. D. Officer Brown. All medical practitioners are invited to be present.

## Post-Graduate Work.

### THE MELBOURNE MEDICAL POST-GRADUATE COMMITTEE.

#### PROGRAMME FOR AUGUST, 1956.

##### Overseas Lecturer.

THE visit of Dr. J. H. Sheldon, F.R.C.P., Director of Medicine and Senior Physician of the Royal Hospital, Wolverhampton, England, will take place from August 26 to September 6, 1956. Dr. Sheldon is the official overseas visitor for 1956 of the Australian Post-Graduate Federation in Medicine. He will give the following lectures at 8.15 p.m. in the British Medical Association Hall, 426 Albert Street, East Melbourne: Wednesday, August 29, "The Clinical Problems of Old Age"; Friday, August 31, "The Clinical Problems of Appetite"; Monday, September 3, "Obesity, with Particular Reference to Maternal Obesity"; Thursday, September 6, "Collagen Diseases". The fees for these lectures are at the rate of 15s. each, but those who have paid an annual subscription to the committee are invited to attend without further charge.

##### Country Courses.

Swan Hill.—At Swan Hill, on Saturday, August 11, the following course will be given in the Lecture Theatre, Swan Hill High School: 2 p.m., "The Management of Burns", Dr. J. C. Stewart and Dr. I. H. Cumming; 3 p.m., "The Manage-



ment of Arthritis", Dr. R. Strang; 4.30 p.m., "Habitual Abortion", Dr. C. N. de Garis. Dr. R. Weaver, 18 Beveridge Street, Swan Hill, is the local secretary. Telephone: Swan Hill 139.

**Colac.**—At Colac, on Saturday, August 18, at 8 p.m., Dr. J. Grayton Brown will discuss "Surgery in Dyspeptic Disorders". The local secretary is Dr. A. C. Newell, Connor Street, Colac. Telephone: 114 or 1143.

**Bendigo.**—At Bendigo, on Saturday, August 18, at 8 p.m. at the Bendigo Base Hospital; Dr. K. D. Fairley and Dr. G. R. A. Syme will discuss "Medical and Surgical Management of Thyroid Disease". The local secretary is Dr. A. J. Walters, 514 High Street, Golden Square. Telephone: Bendigo 228.

**Ballarat.**—At Ballarat, on Thursday, August 23, at 8 p.m. at Craig's Hotel, Dr. J. E. Sewell will read a paper on "Psychosomatic Disorders of the Intestinal Tract".

**Fees.**—Fees for the foregoing courses are at the rate of 15s. each, but those who have paid an annual subscription to the committee are invited to attend without further charge.

**Flinders Naval Depot.**—At Flinders Naval Depot, by arrangement with the Royal Australian Navy, on Wednesday, August 8, at 2.30 p.m., Dr. E. Graeme Robertson will speak on "Modern Conceptions of Epilepsy, with Some Reference to Fainting".

#### Study of Allergic Diseases.

At 8.45 p.m., on Thursday, August 2, at the meeting of the Section for the Study of Allergic Diseases, Victorian Branch, British Medical Association, Professor R. R. H. Lovell will speak on "The Modifications of Inflammatory Reactions in the Human Skin".

#### Scientific Session of the Royal Women's Hospital Centenary Celebrations.

Attention is directed to the programme which Professor Andrew Claye, of Leeds, will follow at the Women's Hospital, commencing on August 13 to September 6. Details may be obtained from the hospital.

#### Refresher Courses in September.

The programmes for the general practitioners' refresher courses in gynaecology and obstetrics and in general medicine and surgery are now available from the committee. Professor Andrew Claye will take part in the gynaecology and obstetrics course in the first week. This will also coincide with a week when Dr. Sheldon will be lecturing in Melbourne. Enrolments for the gynaecology and obstetrics refresher course should be made before August 20. The fee for this course is £14 14s. Enrolments for the general refresher course should be made before September 3. The fee for this course is £9 9s.

#### Inquiries.

The address of the Melbourne Medical Post-Graduate Committee is 394 Albert Street, East Melbourne, C.2. Telephone: FB 2547, FB 2548.

#### SEMINARS AT ROYAL PRINCE ALFRED HOSPITAL.

THE following seminars will be held on Friday from 1.15 to 2.15 p.m. in the Scot Skirving Lecture Theatre, Royal Prince Alfred Hospital, Sydney, from July 13 to October 26, 1956 (plus a special seminar on November 16). All members of the medical profession are invited to attend.

July 13, neurology section, "Progress in Neurosurgery Overseas", Dr. G. K. Vanderfield. July 20, cardio-vascular section, "Tricuspid Incompetence", Dr. Paul Korner (by invitation). July 27, thoracic section, "Pneumokoniosis", Dr. W. E. George (by invitation). August 3, hematology section, "Pancytopenia", Dr. E. F. Thomson. August 10, neurology section, "Cervical Spondylosis", Dr. J. L. Allsop and Dr. S. M. Morson. August 17, endocrinology and metabolism section, "Experience with Oral Treatment of Diabetes Mellitus", Dr. E. Downie (by invitation). August 24, gastro-enterology section, "Blood Groups in Diseases of the Alimentary System", Dr. B. P. Billington. August 31, neurology section, "Vertigo", Dr. J. W. Lance. September 7, endocrinology and metabolism section, "Hormone Analysis

DISEASES NOTIFIED IN EACH STATE AND TERRITORY OF AUSTRALIA FOR THE WEEK ENDED JUNE 30, 1956.<sup>1</sup>

Disease.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.	Northern Territory.	Australian Capital Territory.	Australia.
Acute Rheumatism .. ..	2(1)	5(3)	3(2)	1	..	..	..	..	11
Amoebiasis .. ..	..	..	..	..	..	..	..	..	..
Ancylostomiasis .. ..	..	..	17	..	..	..	..	..	17
Anthrax .. ..	..	..	..	..	..	..	..	..	..
Bilharziasis .. ..	..	..	..	..	..	..	..	..	..
Brucellosis .. ..	1	..	..	..	..	..	..	..	1
Cholera .. ..	..	..	..	..	..	..	..	..	..
Chorea (St. Vitus) .. ..	..	1(1)	..	..	..	..	..	..	1
Dengue .. ..	..	..	..	..	..	..	..	..	..
Diarrhoea (Infantile) .. ..	2(1)	7(6)	1(1)	..	..	..	..	..	10
Diphtheria .. ..	..	5(3)	..	1	1(1)	..	..	..	7
Dysentery (Bacillary) .. ..	..	1(1)	9	3(3)	2(1)	..	..	..	15
Encephalitis .. ..	..	..	..	..	..	..	..	..	..
Filariasis .. ..	..	..	..	..	..	..	..	..	..
Homologous Serum Jaundice .. ..	..	..	..	..	..	2	..	..	2
Hydatid .. ..	60(39)	46(28)	..	11(5)	2(1)	7(2)	1	1	128
Infective Hepatitis .. ..	..	..	1	..	..	..	..	..	1
Lead Poisoning .. ..	..	..	..	..	..	..	..	..	..
Leprosy .. ..	..	..	..	..	..	..	..	..	..
Leptospirosis .. ..	1	..	6(1)	..	..	..	..	..	7
Malaria .. ..	..	..	1	..	..	..	4	..	5
Meningococcal Infection .. ..	1(1)	4(1)	1	1	..	..	..	..	7
Ophthalmia .. ..	..	..	..	..	..	..	1	..	1
Ornithosis .. ..	..	..	..	..	..	..	..	..	..
Paratyphoid .. ..	..	..	..	..	..	..	..	..	..
Plague .. ..	..	..	..	..	..	..	..	..	..
Polio-myelitis .. ..	4	7(4)	2(1)	5(5)	1(1)	6(2)	..	..	25
Puerperal Fever .. ..	..	..	..	..	..	..	..	..	..
Rubella .. ..	..	17(15)	..	5(1)	1(1)	..	..	..	23
Salmonella Infection .. ..	..	..	..	2(2)	..	..	..	..	2
Scarlet Fever .. ..	16(10)	11(7)	4(1)	6(5)	..	..	..	..	37
Smallpox .. ..	..	..	..	..	..	..	..	..	..
Tetanus .. ..	..	..	..	..	..	..	..	..	..
Trachoma .. ..	..	..	..	..	1	..	50	..	51
Trichinosis .. ..	..	..	..	..	..	..	..	..	..
Tuberculosis .. ..	25(15)	21(14)	56(46)	14(12)	8(5)	7(4)	..	..	131
Typhoid Fever .. ..	1	..	..	..	..	..	..	..	1
Typhus (Flea-, Mite- and Tick-borne) .. ..	..	..	..	..	..	..	..	..	..
Typhus (Louse-borne) .. ..	..	..	..	..	..	..	..	..	..
Yellow Fever .. ..	..	..	..	..	..	..	..	..	..

<sup>1</sup> Figures in parentheses are those for the metropolitan area.

in Clinical Diagnosis", Dr. M. Finkelstein, endocrinologist at Hebrew University (by invitation). September 14, cardiovascular section, "Pulmonary Hypertension in Patent Ductus Arteriosus", Dr. B. R. Huxtable. September 21, hematology and gastro-enterology section, "Anemia and the Alimentary Tract", Professor L. J. Witts (by invitation). September 28, no seminar. October 5, thoracic section, "The Association of Pulmonary Disease and the Rheumatic States", Dr. H. M. Rennie. October 12, paediatrics section, "Hemorrhage in the Newborn", Dr. W. H. Cary. (This seminar will be followed by a clinical meeting at the Royal Alexandra Hospital for Children at 4 p.m.) October 19, endocrinology and metabolism section, "Diabetic Coma: A Review of Royal Prince Alfred Hospital Experience", Dr. J. M. Greenaway. October 26, gastro-enterology section, "The Problem of Peptic Ulceration in the Treatment of Rheumatoid Arthritis", Dr. R. W. Boden. November 16, special seminar, neurology section, "Surgical Treatment of Involuntary Movement in Parkinson's Disease", Dr. Ralph B. Cloward, neurosurgeon, Queen's Hospital, Honolulu (by invitation).

## Nominations and Elections.

THE undermentioned has applied for election as a member of the New South Wales Branch of the British Medical Association:

Klavins, Arvis, licensed under Section 21 (b) of the *Medical Practitioners Act*, 1938-1955, Kenmore Hospital, Goulburn, New South Wales.

## CORRIGENDUM.

WE are informed that an error has occurred in the issue of May 19, 1956, under the caption "Nominations and Elections", at page 860. The qualifications of Dr. Clifford Alfred Leeson were given as M.B., B.S., 1942 (Univ. Adelaide), M.R.C.P. Dr. Leeson's qualifications are actually as follows: M.B., B.S., 1944 (Univ. London), M.R.C.P. (London), 1945, M.R.C.S. (England), L.R.C.P. (London), 1942. The mistake is regretted.

## Medical Prizes.

### THE JOHN RYLE MEMORIAL PRIZE.

THE Medical Association for the Prevention of War is offering a prize of £75, to be called the John Ryle Memorial Prize, for the best essay under the title "A World Approach to Human Survival and Health". The prize is open to qualified medical practitioners and to medical students of any nationality, and the closing date for entries is December 31, 1956. Full details of the conditions of the prize may be obtained from the secretary of the association, Dr. D. L. Kerr, whose address is 291 Burntwood Lane, London, S.W.17, England.

## Congresses.

### INTERNATIONAL CONGRESS OF OTOLARYNGOLOGY.

ATTENTION is again drawn to the sixth International Congress of Otolaryngology, which will be held from Sunday, May 5, to Friday, May 10, 1957, at Washington, D.C. The scientific programme for the plenary sessions is now complete. Applications to present voluntary papers should be made before October 1, 1956. The final date for consideration of scientific exhibits is August 1, 1956. Applications to present motion picture films close on October 1, 1956. Those intending to attend the Congress who have not yet registered should do so immediately, in order to obtain priority in hotel accommodation. Further information relating to this Congress may be obtained from the General Secretary, Paul H. Hollinger, M.D., 700N., Michigan Avenue, Chicago II, Illinois, United States of America.

## Deaths.

THE following deaths have been announced:

WILLIAMS.—Henry Bruce Williams, on July 11, 1956, at Sydney.

SKIRVING.—Robert Scot Skirving, on July 15, 1956, at Sydney.

## Medical Appointments.

Dr. L. J. Woodland has been appointed president and Dr. T. W. Burgess has been appointed a member of the Physiotherapists Registration Board for a period of three years from July 1, 1956, subject to the provisions of the *Physiotherapists Registration Act*, 1945.

Professor Hugh Kingsley Ward has been appointed by His Excellency the Governor-General in Council a member of the Universities Commission in pursuance of the provisions of the *Education Act*, 1945.

Dr. D. L. Jones has been appointed as Quarantine Officer, Busselton, Western Australia, pursuant to the provisions of the *Quarantine Act*, 1908-1950.

## Diary for the Month.

JULY 24.—New South Wales Branch, B.M.A.: Ethics Committee.

JULY 25.—Victorian Branch, B.M.A.: Branch Council.

JULY 26.—New South Wales Branch, B.M.A.: Branch Meeting.

JULY 27.—Queensland Branch, B.M.A.: Council Meeting.

## Medical Appointments: Important Notice.

MEDICAL PRACTITIONERS are requested not to apply for any appointment mentioned below without having first communicated with the Honorary Secretary of the Branch concerned, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

New South Wales Branch (Medical Secretary, 135 Macquarie Street, Sydney): All contract practice appointments in New South Wales.

Queensland Branch (Honorary Secretary, B.M.A. House, 225 Wickham Terrace, Brisbane, B17): Bundaberg Medical Institute. Members accepting LODGE appointments and those desiring to accept appointments to any COUNTRY HOSPITAL or position outside Australia are advised, in their own interests, to submit a copy of their Agreement to the Council before signing.

South Australian Branch (Honorary Secretary, 80 Brougham Place, North Adelaide): All contract practice appointments in South Australia.

## Editorial Notices.

MANUSCRIPTS forwarded to the office of this journal cannot under any circumstances be returned. Original articles forwarded for publication are understood to be offered to THE MEDICAL JOURNAL OF AUSTRALIA alone, unless the contrary be stated.

All communications should be addressed to the Editor, THE MEDICAL JOURNAL OF AUSTRALIA, The Printing House, Seamer Street, Glebe, New South Wales. (Telephones: MW 2651-2-3.)

Members and subscribers are requested to notify the Manager, THE MEDICAL JOURNAL OF AUSTRALIA, Seamer Street, Glebe, New South Wales, without delay, of any irregularity in the delivery of this journal. The management cannot accept any responsibility or recognize any claim arising out of non-receipt of journals unless such notification is received within one month.

SUBSCRIPTION RATES.—Medical students and others not receiving THE MEDICAL JOURNAL OF AUSTRALIA in virtue of membership of the Branches of the British Medical Association in the Commonwealth can become subscribers to the journal by applying to the Manager or through the usual agents and booksellers. Subscriptions can commence at the beginning of any quarter and are renewable on December 31. The rate is £5 per annum within Australia and the British Commonwealth of Nations, and £6 10s. per annum within America and foreign countries, payable in advance.